DOCUMENT RESUME

ED 022 889 VT 005 122

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GRADUATE STUDIES IN EDUCATION. VOLUME 1, NUMBER 3.
Stout State Univ., Menomonie, Wis.
Pub Date 66
Note-119p.
EDRS Price MF-$0.50 HC-$4.84
Descriptors-*ABSTRACTS, ADMINISTRATION, CURRICULUM, EVALUATION, HOME ECONOMICS, *INDUSTRIAL EDUCATION, MASTERS THESES, *OCCUPATIONAL GUIDANCE, *VOCATIONAL EDUCATION

As one part of a volume of abstracts of studies of the last decade primarily in the vocational and technical field, this report includes 213 abstracts in the categories of administration, curriculum, and evaluation. Abstracts in administration treat building programs, certification and qualification requirements, cooperative programs, cost accounting systems, educational costs, financing and trends in adult education, foreign student achievement, graphic report formats, guidelines for administration, historical reports, length of school years, maintenance of equipment, orientation of beginning teachers, policy manuals and handbooks, public relations guidelines, school district expansion, student office aid program, trends, and upgrading teachers. Abstracts in curriculum treat areas of instruction, apprenticeship programs, community surveys, curriculum needs and goals, development and selection of instructional materials, future homemakers of America activities, guides for instruction, industrial arts clubs, problem-solving activities, program advertising and development, programed instruction, proposed curricula and programs, and resource units for specific subject areas. Abstracts in evaluation treat project and program evaluation, evaluation improvement, a tabulated job sheet for grading, rating scales, and pupil-teacher sheets. Other parts of the volume are available as VT 005 123 and VT 005 124. (JK)

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Stout State University

ED022889

GRADUATE STUDIES IN EDUCATION

NUMBER 3, VOLUME I, 1966

ABSTRACTS
- Administration
- Curriculum
- Evaluation

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VT005122

This series contains three (3) separate booklets of abstracts which are entitled as follows:

Graduate Studies In Education No. 3 - 1966

- Administration
- Curriculum
- Evaluation

Graduate Studies In Education No. 4 - 1966

- Guidance
- Instruction

Graduate Studies In Education No. 5 - 1966

- Philosophy
- Psychology
- Sociology
- Statistics
- Supervision
- Technical

PREFACE

Recent trends toward mechanized retrieval systems for educational research has initiated moves locally to abstract materials for insertion into such systems. At Stout State University, where a graduate program has been in existence since 1935, there has been no regulation effecting student abstraction of Plan B terminal master's level papers. Hence, there have not been available to research workers immediate accessability to composite results of such reports. The immediate project report is intended to supplement such reporting for those studies completed during the last decade for selected projects in vocational education, industrial education, vocational guidance, audio-visual instruction, and home economics.

The included abstracts have been developed following a standard format and from the original reports. Such abstractions are not intended to be complete for details; for such completeness, the reader should refer himself to the original report.

Much time and effort has been initiated by Mr. William Heineke in abstracting from the original manuscripts and by Mrs. Linda Jacobs and Miss Judy Kuehl in typing this terminal report. The encouragement for the completion of such a report has come from Wisconsin Directors of Vocational, Technical and Adult Schools and they, too, should be duly acknowledged for their interests.

E.W.C.
Menomonie, 1966

INTRODUCTION

"Research is . . . a prominent key essential to the opening of new doors in education"*

The original intent of this report was to have it be used as an index and reference text for educational research workers. The major interest areas are vocationally and technically oriented; thus, the contents will be most appropriate for research workers calling for such areas.

The present federal emphasis in the vocational and technical fields has made such compilations as these imperative for easy access to available sources of information. The Master's Degree level of research has been overlooked during recent times because of the larger volumes of reporting completed at the doctoral level and by professional research workers in education. This compilation of abstracts gives workers an opportunity to see resumes of master's reports for use in developing bibliographies.

Likewise, to the teacher in the classroom and to the administrator, these reports produce much needed "local" information, applicable to the situation at hand. In most instances, these projects are for Wisconsin schools, for all levels, and are specific in their influences. Others have more general implications for the educator.

The general organization for the present report was to arbitrarily categorize or classify each study under one of the eleven categories listed below:

1. Administration
2. Curriculum
3. Evaluation
4. Guidance
5. Instruction
6. Philosophy

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* E. Wayne Courtney, Applied Research In Education. (Totowa, New Jersey: Littlefield, Adams, and Company, 1965), p. 1.

7. Psychology
8. Sociology
9. Statistics
10. Supervision
11. Technical

Of the 546 abstracts which were made, the predominance of them fell in the categories of Curriculum, Instruction, and Technical. The complete breakdown of the classified studies is shown in the table below:

Categories	Numbers	Percentage
1. Administrative	35	6.0
2. Curriculum	165	30.0
3. Evaluation	13 2 1 3	2.0
4. Guidance	97	18.0
5. Instruction	97	18.0
6. Philosophy	4	1.0
7. Psychology	43	8.0
8. Sociology	4	1.0
9. Statistics	9	2.0
10. Supervision	12	2.0
11. Technical	67	12.0
Totals	546	100

As may be seen in the above report, there were some categories containing very few abstracts, while others were very complete. The trend for papers at Stout State University for the period covered appears to be toward "in the classroom" and "technical" types of research.

Administration

"The educational program in any community reflects the society of which the school is a part."*

Abstracts presented for this section of the report include information representing the following subject matter studies which were deemed to be most closely associated to the interests of school administrators.

1. Building Program Development and Planning.
2. Certification and Qualification Requirements.
3. Cooperative Programs.
4. Cost Accounting Systems.
5. Educational Costs.
6. Financing and Trends in Adult Education.
7. Foreign Student Achievement.
8. Graphic Report Formats.
9. Guidelines For Administration.
10. Historical Reports.
11. Length of School Year.
12. Maintenance of Equipment.
13. Orientation of Beginning Teachers.
14. Policy Manuals and Handbooks.
15. Public Relation Guidelines.

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*Cf. Courtney, loc. cit., p. 261.

16. School District Expansion.

17. Student Office Aid Program.

18. Trends.

19. Upgrading Teachers.

Anderson, Ronald H., A Proposed Policy Manual For the Fort Atkinson School of Vocational and Adult Education. Plan B, M.S., 1962, Stout State University, 41 pages: Adviser, Dr. Rudiger.

Purpose of Study--To develop a proposed policy manual for the Fort Atkinson School of Vocational, Technical and Adult Education.

Method Used--Letter of inquiry to sixty-two vocational, technical and adult schools in the state, requesting a copy of current policy manuals. Reading literature related to the topic.

Summary and Findings-- The proposed policies and regulations covered the following area:

- Section I: Policies Governing the Local Board
  - Article I. Organization
  - Article II. Meetings
  - Article III. Rules Governing Meetings
  - Article IV. Advisory Committees
  - Article V. Duties and Responsibilities of the Local Board of Vocational, Technical and Adult Education
- Section II: Policies Governing the Director
  - Article I. Election, Terms, and Salary
  - Article II. Qualifications
  - Article III. Administrative Officer
  - Article IV. Responsibilities to the Local Board
  - Article V. Responsibilities to the Instructional Staff
  - Article VI. Responsibilities to the Operational Staff
  - Article VII. Responsibilities to the Community
  - Article VIII. Responsibilities to the Students
  - Article IX. Responsibilities to the State Board
- Section III: Policies Governing the Coordinators and Supervisors
  - Article I. Policies Governing the Coordinators
  - Article II. Policies Governing the Supervisors
- Section IV. Policies Governing the Teachers
  - Article I. General Duties
  - Article II. Absence from Duty
  - Article III. Sick Leave
  - Article IV. Accident Procedure
  - Article V. Public Relations
  - Article VI. Hours and Assignment of Duties
  - Article VII. Physical Examination
  - Article VIII. Maternity
  - Article IX. Salary Schedule and Payment
  - Article X. Retirement
  - Article XI. Membership Into Professional Organizations
  - Article XII. Annual Report
  - Article XIII. Inventory
  - Article XIV. Requisitions
  - Article XV. Medical Insurance
  - Article XVI. Employment Outside School
  - Article XVII. Circulated Materials

Anderson (continued)

- Section V: Policies Governing the Director's Secretary
  - Article I. Appointment
  - Article II. Hours of Work
  - Article III. Duties and Responsibilities
  - Article IV. Compensation
- Section VI: Policies Governing the Custodian
  - Article I. Appointment
  - Article II. Hours of Work
  - Article III. Duties and Responsibilities
  - Article IV. Compensation
- Section VII: Policies Governing the Students
  - Article I. Compulsory Age Students
  - Article II. Apprentices
  - Article III. General Adult Students
- Section VIII: Policies Governing the Use of the Buildings
  - Article I. Use of the Plant
  - Article II. Custodial Service
- Section IX: Policies Governing the Rental of Equipment
  - Article I. Equipment Used in the Building
  - Article II. Equipment Taken Out of the Building

Bailey, Gary L., An Analysis of the Requirements For the Master's Degree In Industrial Arts Education. Plan B, M.S., 1964, Stout State University, 46 pages: Adviser, Dr. Wigen.

Purpose of Study--To assist the individual who desires to do graduate study in the field of industrial arts education.

Method Used--The normative survey method.

Summary and Findings--Admission to a chosen graduate school is based primarily on the prognosis of undergraduate scholastic achievement, with admission to candidacy occuring later, usually based on unstated criteria. The basic institutional structuring of the distribution of credit within the three plans offered towards designated master's degree was uniformly stated as two-thirds in industrial arts education and one-third in professional education.

Beckman, Ronald M., An Analysis of Certification Requirements For Teachers Of Selected Technologies In Two-Year Post High School Technical Institutes In A Number Of States. Plan B, M.S., 1964, Stout State University, 85 pages: Adviser, Mr. Erickson.

Purpose of Study--To identify the competencies required leading to certification of teachers of selected technologies in two-year post high school technical institutes in the United States.

To enable teacher education institutions to make additions to, or changes in, their present curriculums to better prepare prospective two-year post high school technical institute instructors.

Beckman (continued)

Method Used--Review of literature.
Survey of the fifty states certification standards for two-year post high school technical institute instructor requirements.

Summary and Findings-- Fifty states do not specify the exact number of credits that a two-year post high school technical institute instructor must have in the technology he wishes to teach. Exact numbers of credits required are usually left to the discretion of the personnel hiring and certifying two-year technical institute instructors.

Bressler, Donald E., The Status Of Technical Institute Faculty. Plan B, M.S., 1965, Stout State University, 44 pages: Adviser, Dr. Rudiger.

Purpose of Study--To show the need for technical teachers in technical education. To identify the qualifications of a technical instructor. To show the relationship between industrial and educational experiences needed by teachers of technical education. To examine the present status of faculty members involved in technical education.

Method Used--Documentary survey of educational publications dealing with education of technical institute instructors.

Summary and Findings--The technical education movement has had a remarkably steady growth pattern. Certification laws throughout the states are outdated and mainly apply to teachers in trade and industrial subjects. There is no definite source of teachers but there was a positive trend toward the use of technical institute graduates to fill teaching positions. Institutions of higher learning should set up programs to take care of teacher shortages.

Cartwright, Van R., Trends in Vocational Education in the State of Wisconsin. Plan B, M.S., 1965, Stout State University, 33 pages: Adviser, Dr. Rudiger.

Purpose of Study--To provide evidence in the form of graphs and charts to show the rise or decline of selected areas of vocational education offered in the Wisconsin schools. To provide a starting place for future studies that would also give a broad view of the trends in vocational education in Wisconsin that could be quickly and easily interpreted.

Method Used--Survey of literature.

Summary and Findings--The success of vocational education in Wisconsin is due to many factors. Some of the factors are evident and easily seen while others are more difficult to distinguish. Certainly, good planning has had its effect on building a good system. Good foresight and willingness of the people to support such a program are also very important segments of its growth.

Cartwright (continued)

Wisconsin got a very early start in vocational education. By starting with the leaders, staying with the leaders, and by being a leader, Wisconsin's system of vocational education has been one of the foremost in the nation since its inception in 1911.

Nearly all areas studied showed steady to strong increases over the ten year period. Agriculture is the only area in which the enrollment appears to be dropping. Trends point to the conclusion that Wisconsin will continue to be a leader in vocational education in the future.

Chang, Gregory H. M., A Proposed Plan For The Maintenance of Industrial Arts Shop Equipment. Plan B, M.S., 1961, Stout State University, 54 pages: Adviser, Dr. Wigen.

Purpose of Study--To set up a plan of maintenance that an industrial arts teacher may use as a guide for the improvement of the maintenance of his shop.

Method Used--The normative type of survey was used in this study.

Summary and Findings--A good "preventive shop maintenance plan based on general principles" is a dynamic one that has to be constantly re-evaluated with the change of time and objectives of education. Old equipment has to be discarded when it becomes unsafe to operate and beyond repair. Systematic schedules to check and repair all equipment has to be organized and followed faithfully in order to be effective. Responsibility has to be delegated and checked.

Covey, James W., A Proposed Administrative Handbook For The Rice Lake School Of Vocational, Technical, and Adult Education. Plan B, M.S., 1965, Stout State University, 58 pages: Adviser, Dr. Rudiger.

Purpose of Study--To develop a proposed administration handbook for the Rice Lake School of Vocational, Technical, and Adult Education.

Method Used-- References to administrative handbooks and policy manuals developed by several vocational schools in Wisconsin and the Wisconsin Laws relating to Vocational, Technical and Adult Education. The proposed administrative handbook covered the following areas:

Section I. The Board of Administration
    I. Introduction
    II. Statement of Philosophy
    III. Policies Governing the Board
    IV. Policies Governing the Director
Section II. Coordinators, Department Heads and Other Administrative Personnel
    I. Policies Governing Coordinators
    II. Policies Governing Department Heads
    III. Policies Governing Other Administrative Personnel

Covey (continued)

Section III. The Teacher
   I. General Policies Governing the Teacher
Section IV. The Student Body
   I. Introduction
   II. School Operation
   III. Student Services
   IV. Student Activities
Section V. Supporting Personnel
   I. Office Personnel
   II. Custodial Staff
Section VI. Physical Plant and Equipment
   I. The Plant
   II. Equipment

Daehling, William, Public Relations Guide Lines For the Public School Audio-Visual Department. Plan B, M.S., 1964, Stout State University, 31 pages: Adviser, Dr. Barnard.

Purpose of Study--To establish guide lines to be followed by audio-visual departments in establishing good public relations so that learning can be improved.

Method Used--Normative survey method.

Summary and Findings--(1) Audio-visual materials enrich and vitalize the learning experiences of students. (2) The function of the audio-visual department is to promote public relations leading to a good understanding and support of the department. (3) Audio-visual materials can improve learning when they are properly used. (4) When the audio-visual department makes use of a planned public relations program, it can promote the proper utilization of audio-visual materials. (5) The audio-visual department must establish rapport with the administrators and teachers so that audio-visual materials will be accepted by the staff. (6) The audio-visual department must facilitate the use of audio-visual materials so that they are readily and easily available. (7) The public must be informed of the objectives and functions of the audio-visual department through a planned public relations program so that the program will be supported.

Eggleston, Robert L., A Proposed Plan For A General Comprehensive Shop In Schools With Graduating Classes Of Less Than 100. Plan B, M.S., 1961, Stout State University, 44 pages: Adviser, Dr. Rudiger.

Purpose of Study--To assist school administrators and architects in setting up new industrial arts shops in their building programs. To aid instructors in laying out and equipping new General Comprehensive Shops. To aid instructors in redesigning present shops to get the most value from the space available.

Eggleston (continued)

Method Used--Normative survey method.

Summary and Findings--To ensure adequacy a great deal of preliminary study and planning should be present before new facilities are to be constructed. Planning should always consider future expansion. The shop area should be large enough to facilitate changes in school enrollment and the possibility of other areas of instruction being added. If funds are not available for completely equipping the shop, funds should be budgeted every year to buy new equipment. Cooperation is necessary with all persons involved to assure adequacy of the shop.

Fields, Marshall L., A Survey Of The Academic Achievement Of Foreign Students Attending Stout State College. Plan B, M.S., 1962, Stout State University, 47 pages: Adviser, Dr. Wall.

Purpose of Study--To discover if scholastic differences exist between foreign students who receive a government scholarship and those who do not.

To determine the reactions of these students in regard to the restrictions imposed upon them by their government sponsors.

Method Used--Interviews and questionnaires.

Summary and Findings--A majority stated they were receiving training as a teacher as a condition of their sponsors.

The mean and median difference in grade point average between government supported and non-government supported students was negligible.

Sixty percent of faculty who answered questionnaires were more liberal with grades to foreign students than with American students.

Most outstanding difficulties encountered during the first six months on campus were communication, food, and adjustment to life in the United States.

Reluctance was expressed by the majority of government sponsored students to seek advice from others.

Exclusive of education, foreign students left their home country in order to improve American contacts and to improve fluency in the English language.

Greenway, George R., Trends In The Adult Education Movement In The United States. Plan B, M.S., 1964, Stout State University, 31 pages: Adviser, Dr. Rudiger.

Purpose of Study--To show that there is a definite trend for adult education to be progressing in a positive direction. To show the relationship between past history and future growth trends. To predict, with limitations, a future course of action that one can expect adult education to follow.

Greenway (continued)

Method Used--Review of literature.

Summary and Findings--As a result of the research, it is suggested that emphasis be placed on the following:

1. Offer training to the non-college graduates who will be entering the labor market in the next decade.
2. Provide retraining programs for those who have been displaced due to technological advancements.
3. Make all education equally available to all regardless of race or place of residence.
4. Enlarge teacher and leadership programs to provide a nucleus of instructors.
5. Develop new instructional materials which are written for future expectations.
6. Make occupational and guidance facilities available to everyone.
7. Encourage more research and development in adult education.
8. Make the field of education a continual one.
9. Provide better facilities for adult education in the public schools as finances permit.

Janis, Leo, A Survey of the Cost and Reimbursement for Obtaining a Master of Science Degree in Industrial Education From Stout State College. Plan B, M.S., 1961, Stout State University, 15 pages: Adviser, Dr. Rudiger.

Purpose of Study--To ascertain the approximate cost of obtaining credits at the graduate level from Stout State College for men graduate students working toward the Master of Science Degree.

Method Used--Survey in the form of an information blank.

Summary and Findings--The most economical way to obtain a Master's Degree from Stout State College is by attending eight-week summer sessions.

Jeatran, Daniel K., A Proposed Cost Accounting System For Food Services At Stout State University. Plan B, M.S., 1965, Stout State University, 26 pages: Adviser, Miss Killian.

Purpose of Study--To formulate the specific procedures, charts, and forms for each operation dependent on particular criteria.

Method Used--Comprehensive review of available literature concerned with accounting.

Detailed investigation of food service operations at various state universities.

Jeatran (continued)

Summary and Findings--Any accounting system requires detailed study and adjustments for the particular food operation. The method presented may be tied into the school system accounts so that the administration may have a check on the overall accuracy of the figures. The data and operating results must be channeled to the proper persons and then see that they are used.

Johnson, Allen E., An Industrial Arts Handbook For the Wausau District Public Schools. Plan B, M.S., 1963, Stout State University, 35 pages: Adviser, Dr. Rudiger.

Purpose of Study--To aid teachers, guidance counselors, and administrators in the programming of students. To give the students an over-all view of what is being offered in the field of industrial arts.

Method Used--Review of related literature.
Review of industrial arts courses offered at the Wausau District Public Schools.

Summary and Findings--Present trends indicate that changes will emerge at Wausau along the following lines:

1. Courses which deal with preparation for service occupations will receive more attention. This will be due to the impact of automation.
2. The vocational and college preparatory purposes will receive heavier emphasis during the later high school years.
3. Some correlations of mathematics, science, and industrial arts programs will be developed to meet the needs of future engineering and industrial technicians. Big shortages of trained men in these fields are predicted in the years ahead.

Kritz, Edward J., A Proposed Instructional Materials Center For the Kenosha Public Schools. Plan B, M.S., 1962, Stout State University, 33 pages: Advisér, Dr. Barnard.

Purpose of Study--To suggest a generalized plan for housing an instructional materials center at the Deming School to service the Kenosha public schools. To clarify what an instructional materials center is, and what its function should be with respect to the entire educational picture.

Method Used--Normative survey method was used.

Summary and Findings--The physical facilities of the Deming School could be adapted to the fuctions of an instructional materials center because:

1. the various rooms that are available for the center are grouped functionally,

Kriz (continued)

2. the various sizes of the rooms available readily lend themselves to housing the functions of the center with a minimum of changes,
3. the school is in a desirable location with respect to the other schools in the city,
4. the teachers can get to the school without too much inconvenience,
5. the school adjoins a residential area so that parking is available nearby, and
6. the warehouse and delivery center for the school system is located across from the Deming school.

Marose, Frank R., A Five Year Development Plan for Audio-Visual Services at the Wisconsin School For Boys-Wales. Plan B, M.S., 1965, Stout State University, 64 pages: Adviser, Dr. Barnard.

Purpose of Study--To provide a plan of audio-visual services that may be used in the development and expansion of the present program at Wales.

Method Used--A review of current literature was made to determine the present effective audio-visual materials and methods available.

Summary and Findings--The potential contribution which audio-visual media can make has not been fully realized at Wales. To date, an effective program of utilization has not been developed. There has not been a plan, or criteria developed for the selection and use of audio-visual materials and equipment. Because of lack of facilities and training, teachers have not been producing their own audio-visual equipment. A facility has not been provided for an instructional materials center. The present budgeting and financing of the program has not been the result of careful study and planning. Because the teachers have not shown initiative or interest in the audio-visual program, there has not been a plan for in-service training in the operation, selection, evaluation, and previewing of educational media. No form of evaluation has been made for the program at the school.

Okazaki, Ronald T., A Guide For the Orientation of a Beginning Teacher in Industrial Arts. Plan B, M.S., 1960, Stout State University, 39 pages: Adviser, Dr. Wigen.

Purpose of Study--To prepare a guide for the orientation of beginning industrial arts teachers.

Method Used--The type of research used in this study was the normative-survey based on the documentary frequency method. A review of literature was conducted to find material which related to orientation of beginning teachers. A check list of significant duties and activities of newly inducted industrial arts teachers was identified

Okazaki (continued)

in the literature. From the check list of significant duties and activities, a guide for the orientation of beginning industrial arts teachers was formulated.

Summary and Findings--The study revealed that many authors have written about orientation of beginning teachers and are seriously concerned about its importance. From these readings, various terms used in the study were defined clearly; some of the common adjustment problems faced by beginning teachers were mentioned; need of orientation programs was stressed; and current orientation programs were presented.

The proposed guide may be used by superintendents, supervisors, administrators, and the newly inducted teacher for the orientation of beginning industrial arts teachers.

Reed, Alan E., Financing Adult Education in the Public Schools. Plan B, M.S., 1962, Stout State University, 33 pages: Adviser, Dr. Christianson.

Purpose of Study--To determine the general problem of financing adult education in our public schools, how this problem is being met in school systems throughout the country, and what the general trends are in public adult education.

To justify a unified plan for financing adult education with the contribution that the educated adult can make to present day society.

Method Used--Review of the findings made by several authorities in the field.

Summary and Findings--The problem of finance is varied and one which is controlled by individual areas. There is not sufficient legislation supporting adult education in the various states, and there is a lack of consistent financing, not only within one state, but from one state to another.

Sabota, Roger A., A Proposed Residence Hall Handbook for Stout State University. Plan B, M.S., 1965, Stout State University, 44 pages: Adviser, Dr. Iverson.

Purpose of Study--This study was concerned with the formulation of a Residence Hall Handbook to be used in the Men's Residence Halls at Stout State University.

Method Used--Review of literature.

Administration of a questionnaire to the residents of two residence halls now in operation at Stout State University.

Summary and Findings--The suggestions which were presented by many of the residents were deemed to be very valuable. It has become

Sabota (continued)

obvious that the residents are in a position to constructively criticize an existent program. The following is the format of the Handbook:

- Welcome
- History
- Residence Hall Staff
  - Director of Men's Housing
  - Resident Heads
  - Resident Assistants
- Hall Government
  - Constitution of Men's Residence Halls
- General Information
  - Automobiles
  - Bulletin Boards
  - Check out Procedures
  - Grades
  - Guests
  - Intramurals
  - Laundry
  - Liability
  - Linen Service
  - Luggage
  - Maintainance
  - Sickness
- Regulations
  - Board of Regents University Regulations
    - Damage
    - Fire
    - Fireworks
    - Gambling and Drinking
    - Pets
    - Residents
  - Residence Hall Regulations
    - Appearance of Residents
    - Appliances
    - Athletic Practices
    - Canvassing or Soliciting
    - Floor and Hall Meetings
    - Food in Rooms
    - Furniture and Furnishings
    - Keys
    - Lights
    - Quiet Hours
    - Radios and Record Players
    - Responsibility for your Room
    - Room Decorations
    - Screens
    - Sports Equipment
    - Telephones
    - Week-end Leaves

Shuckle, William A., Industrial Arts Maintenance in Woodworking. Plan B, M.S., 1965, Stout State University, 23 pages: Adviser, Dr. Prichard.

Purpose of Study--To determine the percentage of maintenance completed, and the amount of time a Wisconsin industrial arts woodworking teacher spends on the maintenance of his machines and equipment. To discover the number of machines and tools in the woodworking shops and which of these requires the most maintenance time.

Method Used--Review of literature.
Questionnaire.

Summary and Findings--Since most Wisconsin woodworking teachers are required to complete their maintenance in the shops, these teachers should be required to complete a course in woodwork equipment maintenance.

Teachers spend much valuable time on maintenance. These teachers should be given additional pay for this maintenance or their teaching load should be reduced. An alternate solution to the above mentioned would be to let local concerns or other agencies complete this required maintenance.

Simpson, Roy E., A Survey in the Tomah Area Concerning Adult Interests in the Organization of a School of Vocational and Adult Education. Plan B, M.S., 1962, Stout State University, 15 pages: Adviser, Dr. Wiehe.

Purpose of Study--To determine if the people in the Tomah area desire a School of Vocational and Adult Education, and if this school should be bounded by the present school district lines or if the boundaries should be the Tomah city limits.

Method Used--Questionnaire.

Summary and Findings--1. The educational interests of Tomah Area citizens are similar to interests of citizens inhabiting other American rural communities. 2. The boundaries of this school should be the same as those of the present public school. 3. Citizens want this type of education as soon as the school can be organized. 4. A well rounded adult educational program could be developed in this community.

Smolarek, Zenon, A Study of the Integral Parts of Cooperative Education Programs in Higher Education. Plan B, M.S., 1964, Stout State University, 29 pages: Adviser, Mr. Ganzemiller.

Purpose of Study--To examine the integral parts of specific cooperative programs with the purpose of making recommendations to schools planning to set up such programs.

Smolarek (continued)

Method Used--The primary sources of data used in this study were the questionnaires sent to schools and industries.

Summary and Findings--This report suggested that:

1. Cooperative education should not be required of students.
2. Cooperative education should not be an elective program.
3. In electing the program, the student should hold and maintain a 2.5-4.0 grade point average.
4. Industry felt that the student should complete at least two academic years before entering the first work period.
5. The total time spent on work assignment should be approximately seventy-two weeks.
6. The work period should be twelve weeks in length.
7. The school should screen applicants and the firm should select from those screened.
8. The company supervisor should rate the students performance or the job.
9. Some type of credit should be given for cooperative work-study.
10. Schools should not be allowed to set pay schedules for students on work assignment.
11. The total course of study should be a five year program.

Somers, Charles W., Contribution of Stout State College To the Quality and Upgrading of Industrial Arts Teachers in the State of Wisconsin. Plan B, M.S., 1960, Stout State University, 24 pages: Adviser, Dr. Wigen.

Purpose of Study--To determine the degree to which Stout State College was contributing to the Industrial Arts program in Wisconsin.

Method Used--The normative survey method was decided upon because the study was based on existing records.

Summary and Findings--Of the 642 Industrial Arts teachers in Wisconsin, it was found that 309 or over 48% were graduates of Stout State College. Over 75% of these teachers have secured positions in schools having 15 to 70 teachers.

1. In the school year 1956-57, Stout State College supplied nearly 50 per cent of the Industrial Arts teachers in Wisconsin.
2. Of the above stated number, about one-third have the Master of Science degree.
3. Stout State College graduates have a tendency to secure positions in schools having 15 to 70 teachers.

Sorenson, Robert P., A Study Of The Year-Round School. Plan B, M.S., 1965, Stout State University, 42 pages: Adviser, Dr. Wall.

Sorenson (continued)

Purpose of Study--To investigate a possible year-round operation of a vocational school. To determine what type of a year-round school calendar would be best adaptable to a two year, post-high school terminal educational program for the Wausau Technical Institute.

Method Used--Review of literature.
Interviews.
Group conferences.

Summary and Findings--Trimester proves to be slightly more efficient than the four term or quarter plan and obviously superior to the semester plan. The four term or quarter calendar will evolve as a superior calendar when taking into consideration the length of each term. The four term calendar would utilize the faculty to a greater extent over a 5 year cycle service schedule. The four term plan would increase the salaries of faculty members greater than the three term plan and thus will attract into the profession a larger corps of younger people.

St. Claire, Robert, Presenting School Safety Facts. Plan B, M.S., 1956, Stout State University, 27 pages: Adviser, Dr. Anderson.

Purpose of Study--To develop a format for graphic presentation of accidents in the annual safety report. The problem was fourfold. The format should keep within the best graphic standards, it should be simple in construction and reproduction, there must be charts to depict each type of required information, and it should be modern in the concepts of chart making.

Method Used--To determine the present practices of chart making, and the proper information to be charted, a survey of the literature was performed. From a review of the volumes of material available, a selected bibliography was formed from publications of recent years. This was done to develop the report along recent trends and in keeping with great strides made in this field since WW II.

Summary and Findings--Education is the only field in which self-made charts are definitely advised as a help. In other fields it is better to rely upon specialists to produce the most effective means of portraying ideas. The field is so gross and involves so many special skills that an untrained individual may not handle the facts effectively.

Stainer, John, A Survey Of Educational And Occupational Qualifications Of Wisconsin Vocational, Technical, and Adult Educators. Plan B, M.S., 1963, Stout State University, 35 pages: Adviser, Dr. Rudiger.

Purpose of Study--To ascertain the educational and occupational qualifications of the educational personnel employed by the Vocational, Technical, and Adult Schools of Wisconsin.

Stainer (continued)

Method Used--Normative survey.
Questionnaire.

Summary and Findings--It was found to be apparent that the work experience along with educational employment in the Vocational Schools, public schools, and colleges, gives the Vocational Schools an extensive and diversified background of experience to draw upon. Evidence is that the individuals are not remaining stagnant in their own educational background. Certification is an area in which the group may be justifiably criticized. Much work needs to be done to correct this deficiency.

Swant, John F., Historical Report of Wisconsin Administrators for Vocational Schools 1911-1952. Plan B, M.S., 1953, Stout State University, 22 pages: Adviser, Dr. Wigen.

Purpose of Study--To analyze the administrative controls, changes and effects, to get a historical review of the vocational administrative programs in Wisconsin.

Method Used--The method employed was historical survey of the schools of vocational and adult education in Wisconsin.

Summary and Findings--Within this study are a number of important items closely related, that assist in the analysis of administrative controls, changes, effects and growth of the Wisconsin Vocational School System. The original Laws of 1911, Chapter 616 creating this system, Chapter 664 amending Chapter 616, and the revised laws of Wisconsin as amended by Chapter 664, Section 146 of Laws of 1911 are included in this report. Reasons for the law were caused by need and demand for training in vocations. An area map is included to show the location of the Wisconsin Vocational Schools and the areas they serve. Notorized letters, content of which was taken from the official records of the Boards of Vocational and Adult Education from 1911 to 1952, which indicates the year and inauguration of each school, list and number of principles or supervisors under public school supervision, date and name of the first director, list and number of directors in each of the Wisconsin Vocational Schools up to 1952, and the number of part-time or acting directors in the Wisconsin Vocational Schools as also included in the report.

Tafessa, Kebkabe, An Overview of Adult Home Economics Education In Wisconsin. Plan B, M.S., 1965, Stout State University, 33 pages: Adviser, Dr. Rudiger.

Purpose of Study--To review adult home economics education in the State of Wisconsin with the hope that the findings could be used as a basis for developing an adult home economics guide for Ethiopia.

Tafessa (continued)

Method Used--The documentary method was used in preparing this study.

Summary and Findings--Adult home economics may, in large, fill the gaps left by formal education. The field of home economics can contribute much to this end. The ever-increasing leisure time available to adult women particularily in the cities needs to be used constructively.

Adult home economics education classes will help homemakers develop consciousness of the responsibilities for home and family life and its general improvement. The skills offered at adult home economics schools will enable homemakers to solve personal and community problems as they affect the home. This program, in general, will give women the opportunity to be informed about new trends in home economics. This program may help housewives be broad minded and receptive to changes in the present world they are living in. This program may prepare one to enter into different types of occupation in various areas of home economics. The function of adult home economics education is wide and depending on the goals and interests that the students have in mind when attending this type of a school.

Tarbert, Jimmy J., Student Office Aid Program for Industrial Education. Plan B, M.S., 1965, Stout State University, 33 pages: Adviser, Dr. Prichard.

Purpose of Study--To formulate guidelines for organizing and administering a cooperative training program which would provide realistic secretarial practice for a student aide. To determine duties appropriate for a student aide. To design a handbook of duties and techniques for a student aide.

Method Used--A review of industrial education master's and doctoral investigations was made to determine to what extent student aides had been used in school shops.

Summary and Findings--No cases were found in which a program of student office help was reported as being used in a school industrial education shop.

A student aide program has definite advantages for schools in which the industrial education teacher believes his teaching effectiveness could be increased if less time and effort were spent performing secretarial tasks and where administrators are interested in providing realistic work experience for students interested in occupational training.

The student aide program is one of specific occupational training. Its content should be based on an analysis of skills and knowledge needed by the practicing secretary.

Program standards must be maintained that will assure the realization of expected advantages. The organization of the program can be flexible so long as standards are preserved.

Thurstone, Raymond L., A Survey to Determine the Trends In Secondary School Building Throughout the United States For the Years 1949-1957. Plan B, M.S., 1958, Stout State University, 70 pages: Adviser, Dr. Wall.

Purpose of Study--To initiate research in Design and Architecture before constructing or planning new schools, to stimulate more interest among architects, educators, and the people of the community in planning the new school, to determine whether the trend was toward functional design, and if so, to inform people about this trend.

Method Used--Review of literature.

Summary and Findings--

1. The secondary school sites are increasing in size to provide for the modern school building, and the greater community use, as well as recreational area for the students.
2. Contemporary architecture of secondary schools have eliminated the frills and artificial ornamentation, thus extending the school building dollar toward more functional use.
3. The typical secondary school building of today is a one-story structure.
4. Comparison among school building costs is essentially unfair and unrealistic, however, it is apparent that considerable effort has been expended to obtain economy in secondary school buildings.
5. Secondary school construction costs are present due to the rise of building material prices and labor costs, and this is not related to the use of non-functional design features.

Vander Kamp, Leo B., A Study to Determine the Contribution of Stout State College to the Upgrading of Vocational Teachers in Wisconsin. Plan B, M.S., 1958, Stout State University, 13 pages: Adviser, Dr. Wigen.

Purpose of Study--To determine the contribution of Stout State College to vocational education in Wisconsin in the upgrading of instructors and administrators at the Master's degree level. To determine as accurately as possible the number of Stout graduates, with both the Bachelors and Master's degree, who are employed in Wisconsin vocational education and the positions held by them.

Method Used--The method employed to obtain the materials used in this report was the normative survey.

Summary and Findings--

1. Of the 241 Stout graduates employed in Wisconsin Vocational and Adult Education, a large percentage of them occupy important positions.
2. Graduates of Stout with the Master of Science degree are in demand not only as teachers but also as administrators.
3. The graduate program at Stout has contributed a great deal to vocational education in the form of competent personnel.

4. Graduates of Stout with the Master of Science degree enjoy a high degree of success in Vocational Education in Wisconsin.
5. The data used for the completion of this report was conclusive.

Wang, Hwa-lin, Guidelines For the Improvement of Vocational Industrial Senior High Schools in Taiwan. Plan B, M.S., 1966, Stout State University, 75 pages: Adviser, Dr. Courtney.

Purpose of Study--To compare the American and Taiwan educational systems in order to develop guidelines for the improvement of Vocational Industrial Senior High Schools in Taiwan.

Method Used--Review of literature.

Summary and Findings--In light of the facts given and discussed, the following list of recommendations, designed to meet the present needs and problems of vocational and technical education in Taiwan, were presented:

1. That a Department of Vocational Education in the Ministry of Education of the Republic of China be established.
2. That local school boards be established for the promotion of vocational and technical education.
3. That a graduate program in Vocational and Industrial Education be organized and offered at the Taiwan Provincial Normal University.
4. That the budget for vocational and industrial education be allocated and increased depending upon the need.
5. That measures to improve the prestige and attractiveness of economically important occupations be emphasized.
6. That a number of scholarships and loans for study in important fields be increased, particularly for vocational schools and technical institute schools.
7. That, in order to increase the relevance of education with industry, agriculture and military service should be strengthened.
8. That the image of skilled labor and the prestige attached to technical and vocational schooling in preparation for the skilled vocations be changed through the media of radio and television, thus broadening the national understanding and appreciation of modern techniques.

Wright, Enid (O'Reilly), Guidelines for the Administration of Vocational Girls Schools in Sierra Leone. Plan B, M.S., 1965, Stout State University, 48 pages: Adviser, Dr. Courtney.

Purpose of Study--To determine what administrative policies, procedures, and practices in vocational education were acceptable for prevailing conditions in Sierra Leone.

Wright (continued)

Method Used--Review of related literature.

Summary and Findings--It was recommended that the first two years of vocational school curriculum should be broad and general as it is at the present time in the Y. W. C. A. Vocational Institute. The third year may be considered a transition year when students can decide, with the help of counselors, upon the vocation they would like to pursue. Students may be allowed to change during this period, but should be encouraged to pursue their final choice when once they have started the fourth year. However, it is not recommended that students be compeled to stay on in any course even if they have no desire to do so. Good counseling will help prevent such a situation from initially existing.

Yount, John R., A Survey Of Opinions Concerning Shop Maintenance. Plan B, M.S., 1961, Stout State University, 15 pages: Adviser, Dr. Rudiger.

Purpose of Study--

1. To obtain an up-to-date indication of the trends, status, and opinions of instructors doing their own maintenance work for their shop.
2. To ascertain the number of hours per week spent doing shop maintenance work during actual school hours, or after school.
3. To furnish data concerning the average class size by subject area, the type of school, school enrollment, level of teaching, length of class periods, school day, and the location of the school, as well as suggestions for teacher preparation.

Method Used--Survey method was used-information blank.

Summary and Findings--Industrial arts instructors in general appear to disagree on the subject of doing shop maintenance. While most all of them expressed concern over the ever-growing job of maintenance and indicated that they now are involved in the repair and upkeep of their shop equipment, many did not wish at this time, for one reason or another, to relinquish these tasks. Many instructors did not feel that it was a problem apparently, and until more do, the situation will remain as it is presently.

The present pattern of thought of the industrial arts instructor is one of continuing on in the traditional manner of our predecessors.

II

Curriculum

"The curriculum acts as a facilitation system for meeting the needs of society as well as for the individual needs of pupils."*

The information contained within this section of the report represented a variety of studies which were oriented specifically to the classroom situation and to the teacher. This section includes reports on:

1. Areas of Instruction.
2. Apprenticeship Programs.
3. Community Surveys.
4. Curriculum Needs and Goals.
5. Development and Selection of Instructional Materials.
6. Future Homemakers of America Activities.
7. Guides For Instruction.
8. Industrial Arts Clubs.
9. Problem-solving Activities.
10. Program Advertising.
11. Program Development.
12. Programmed Instruction.
13. Proposed Curricula.
14. Proposed Teaching Programs.
15. Resource Units for Specific Subject Areas.

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* Cf. Courtney, loc. cit., p. 303.

Akbas, Aytekin, A Resource Unit In Machine Shop For The Vocational Schools Of Turkey. Plan B, M.S., 1964, Stout State University, 46 pages: Adviser, Dr. Wiehe.

Purpose of Study--To collect and identify up-to-date information for the machine shop to aid instructors and administrators to choose materials for the development of courses of study and teaching units in trade schools of Turkey.

Method Used--Review of literature in the area of vocational education resource units and machine shop.

Summary and Findings--Demand for skilled workers in Turkey makes the course in machine shop very important to the educational program. Resource units can be of great help in preparing and developing programs of instruction.

Anderson, Carl F., An Occupational Survey Of The Lakeland High School District. Plan B, M.S., 1962, Stout State University, 17 pages: Adviser, Dr. Rudiger.

Purpose of Study--To provide data which will help evaluate the industrial arts program offerings of Lakeland High School.

To furnish data to aid in the counseling students and in planning their vocational future.

Method Used--Questionnaire method.

Summary and Findings--Lakeland High School is teaching most of the courses recommended by employers.

Courses in electricity and related areas should be taught.

English usage is considered important by employers in all occupations.

Anderson, Donald, A Proposed Plan For An Industrial Arts Club At The Secondary Level. Plan B, M.S., 1965, Stout State University, 36 pages: Adviser, Dr. Prichard.

Purpose of Study--To help create an interest in industrial arts and draw attention to its real value in education. To aid in the vocational guidance of each club member.

Method Used--Review of literature.

Anderson (continued)

Summary and Findings--The program discussed in the paper was highly recommended for its value in supplementing classroom activity. The activities experimented with had a definite effect on the interest, adjustment, and scholastic records of the club members. It was shown to be an excellent way to communicate the importance of industrial education to the student body, teachers, and the community.

Anderson, James A., Type and Frequency Of Course Offerings In Industrial Arts On the Graduate Level In Colleges and Universities. Plan B, M.S., 1954, Stout State University, 31 pages: Adviser, Dr. Wigen.

Purpose of Study--To show the need of schools to broaden their offerings, to give the student a better selection of area courses, as well as a wider range of courses from many areas.

Method Used--The method employed was to analyze the content of graduate courses in industrial education for the master's degree.

Summary and Findings--There is a multiplicity of course titles; hence, it is difficult to clarify courses in terms of basic areas for teacher preparation.

Titles of courses in terms of content could be reduced by cooperative effort on the part of administrators for teacher trainers in industrial education.

There is a lack of courses in the field of psychology.

It would be helpful for administrators in industrial education teacher training to evaluate the course offerings of his school in terms of courses offered in other schools.

Apel, Margaret Miller, Clothing Selection Problems of the Adolescent--Suggested Course Content. Plan B, M.S., 1962, Stout State University, 67 pages: Adviser, Dr. Barra.

Purpose of Study--To try to find some of the reasons for the selection of dress and to suggest some ways of helping high school girls become conscious of good taste in the selection and purchasing of appropriate clothes for various occasions and to be aware of the importance of good grooming.

Method Used--The method used was a review of literature published on subjects related to problems of the adolescent, existing courses of study, resource units, and clothing selection; matter for content relative to clothing selection was used.

Summary and Findings--There is much material available for the teaching of clothing selection. However, the material needs to be evaluated and proper emphasis placed according to the community in which the unit is being taught.

Arnetveit, Kenneth I., Justification of the Carpentry Area In Industrial Arts Education. Plan B, M.S., 1955, Stout State University, 39 pages: Adviser, Dr. Wigen.

Purpose of Study--The purpose of this study was to present to industrial arts teachers, supervisors, administrators, and vocational guidance counselors:

1. The importance and need for instructional carpentry units in their present curriculm setup in industrial arts.
2. The justification for offering this type of education.
3. The many aspects of carpentry that comply to the suggested objectives for industrial arts.
4. The available occupational information on carpentry.

Method Used--The information presented in this study was supported by documentary evidence.

Summary and Findings--As a result of the findings of this study, the following conclusions were derived:

1. The number of schools that include carpentry in their industrial arts program is very small.
2. There is a definite need for an expansion of carpentry instruction in industrial arts.
3. Carpentry can be taught in conjunction with other areas in industrial arts.
4. If carpentry is included in the industrial arts program, the objectives of industrial arts can be more fully facilitated.
5. The number of young men entering the carpentry field show that there is a need for instruction in carpentry.
6. Carpentry is a necessary occupation and the trend is that there will be an increasing need for carpenters in the future. People will always need shelter of some sort.
7. Constantly new types of materials are being developed in research laboratories; hence, the demand for training carpenters in the use of these new materials will increase in the future.
8. Most students entering adulthood will benefit by some instruction in carpentry work.
9. A person with poor physical health or handicaps should be discouraged from entering this occupation for life work.

Badzinski, Stanley Jr., An Analysis of the Milwaukee Area Carpentry Apprenticeship Program. Plan B, M.S., 1963, Stout State University, 53 pages: Adviser, Dr. Wigen.

Purpose of Study--To determine why there is an insufficient number of carpenter apprentices in training and to suggest ways of meeting the shortcoming in the apprenticeship program.

Method Used--A check list was devised and the standards of the Milwaukee Area Apprenticeship program were compared with the National Carpentry Apprenticeship Standards and the Wisconsin Apprenticeship Standards.

A questionnaire was devised and mailed to members of the Milwaukee Area Joint Apprenticeship Committee.

Badzinski (continued)

Summary and Findings--in making the comparison, it was evident that the present Milwaukee program was providing an opportunity for sufficient educational preparation for the apprentices.

The training program places as many new apprentices in training as the employers will hire, and at present, the supply of journeymen is adequate for the demand.

Baldus, A. Lorayne Reiten, Problems of Integrating Future Homemakers of America Activities Into the Home Economics Curriculm. Plan B, M.S., 1962, Stout State University, 45 pages: Adviser, Dr. Horn.

Purpose of Study--To determine the problem home economics teachers have in integrating Future Homemakers of America activities into the total home economics program.

Method Used--The methods used in obtaining information needed for this study were a survey of available literature concerning the integration of the Future Homemakers of America into the total homemaking program and a questionnaire given to advisers attending the 1962 summer session at Stout State College, Menomonie, Wisconsin.

Summary and Findings--Advisers do not fully understand what is meant by coordination of class, FHA, and home experience. They do need help but it must be given in a more simple and practical manner than the written material which is available to them. They need help in devising ways to guide chapter members in making decisions and in developing leadership abilities. When they can affectively guide chapter members toward developing self-confidence and independence, many of their problems concerning enthusiasm, integration, and the amount of time spent guiding chapter activities will be solved. There is a wealth of creativeness waiting to be used in each individual chapter. A more meaningful experience is possible when there is an effective coordination between all aspects of the home economics program and when all persons involved have a part in the planning of such a program.

Bannon, Marie, Interpreting the Homemaking Curriculm To the Public. Plan B, M.S., 1958, Stout State University, 42 pages: Adviser Miss Perman.

Purpose of Study--To give the goals of a good homemaking course, list the criticisms, the implications, and show how an effective promotion may be presented through public relations to those who need to be informed.

Method Used--Review of literature.

Summary and Findings--The homemaking teacher must fit into the administrator's public relations program, work with the other staff

Bannon (continued)

members, cooperate with school activities, and lend service, where necessary, so that the community sees that she is a working part of this complete system.

The instructor must meet the needs of the community and prepare students for the future. An instructor should not underestimate the value of the press, radio, and T.V. when planning her strategy; these are the best tools she has to reach more of her public as it is impossible to make all contacts through personal contacts.

Beck, Thomas W., Selected Recent And Unique Metal Forming Processes. Plan B, M.S., 1965, Stout State University, 63 pages: Adviser, Dr. Wiehe.

Purpose of Study--To develop a unit of instruction that will assist the industrial education teacher to begin to bridge the gap between industry and the school shop. Report of some of the latest metal forming processes.

Method Used--Documentary Survey.

Summary and Findings--No one article, periodical, or textbook can supply all the necessary information required to understand, explain, and illustrate recent metal forming processes. In order that the metal forming processes be fully understood some form of pictorial illustration should be used. To simplify and condense ideas requires considerable background.

Bedsted, Leo R., A survey of Engineering Schools. Plan B, M.S., 1962, Stout State University, 33 pages: Adviser, Dr. Oetting.

Purpose of Study--To determine what course preparation and qualifications were necessary for students who are planning to enter a school of engineering, in addition to those stated in the college catalogues.

Method Used--An information gathering survey was used.

Summary and Findings--The responses by the engineering colleges, when asked to list high school subjects they believed necessary for pre-engineering students, indicated that there was hardly any agreement and casts some doubts on whether these perosns have given a great deal of thought to this matter. When asked to complete a list of high school subjects totaling nineteen units, less than half of the responding group fulfilled this request. However, the remainder indicated clearly that subjects in science, mathematics, foreign language, mechanical drafting, and speech were essential. The validity of the remaining choices seemed questionable since too many of the respondents did not complete this part of the questionnaire.

Bender, Russel James, Correlation of General Science and Ninth Grade Industrial Arts. Plan B, M.S., 1965, Stout State University, 35 pages: Adviser, Dr. Piersall.

Purpose of Study--To determine what can be done in general science and industrial arts to improve instruction in each of these subjects. Because of the interrelationship of these subjects, it was the concern of the study to find units, activities, and materials that would lend themselves to the correlation of industrial arts and general science in the general education curriculum.

Method Used--Reviews of literature.

Summary and Findings--Not all units, activities, and materials can be used in correlating industrial arts and general science. The nature of correlation means that teachers must work together as a team to make the program work successfully. A central theme is essential to determine the approach to correlating industrial arts and general science and to present an integrated picture to the students. Timing is a very important element to be considered if the program is to be successful.

Beyer, William L., The Justification, Content, and Proposed Resource Unit For Teaching Wood Identification. Plan B, M.S., 1960, Stout State University, 35 pages: Adviser, Dr. Swanson.

Purpose of Study--To investigate the worth of teaching wood identification, define the content of a wood identification unit, and propose suggestions for teaching this unit.

Method Used--The method used in securing data for this study was the documentary frequency type of normative survey.

Summary and Findings--To justify the teaching of wood identification, the objectives from the American Vocational Association which had definite values were used.

To define the content of a wood identification unit, certain valuable characteristics which could be observed without the aid of special equipment were defined. These included: (1) sapwood, (2) heartwood, (3) hardness, (4) growth rings, (5) pores, and (6) wood rays.

The proposed means for teaching wood identification included suggestions for providing an incentive for learning, suggestions for presenting material, suggestions for testing the material taught, and then a suggested reference list for the instructors and the students.

Blasczyk, James E., A Sample of Programmed Instruction In Industrial Education For Electronics In the Senior High School. Plan B, M.S., 1965, Stout State University, 59 pages: Adviser, Dr. Ruehl.

Blasczyk (continued)

Purposes of Study--To gain the facility for programming educational material, to define new terms, concepts and techniques of programming, literature on programmed test material, research conducted in the field of programming, methods of formulating objectives in programming and the problems and issues involved with programming. The study also included the development of a sample programmed unit of instruction to be used in teaching electronics.

Method Used--Review of literature. Testing of program and revision until ninety-five percent was reached.

Unit Programmed was titled "Capacitance in D-C Circuits."

Summary and Findings--The greatest and most extensive issue found in the study was the reaction and emotional setting felt by the student.

Steps in formulating a programmed unit were:

1. Defining the field
2. Formulating the objectives
3. Collecting the subject matter
4. Determining the method of programming
5. Constructing the program
6. Testing the program
7. Evaluating the program
8. Revising the program

Boyer, Gaylord, A Suggested List of Problems and Activities for the Oxy-Acetylene Welding Block of The General Metals Area In Industrial Arts. Plan B, M.S., 1953, Stout State University, 24 pages: Adviser, Dr. Wigen.

Purpose of Study--To plan a problem and activity method of instruction in order to teach the oxy-acetylene welding block in the general metals area in the industrial arts program on a life situation basis.

Method Used--The following methods were employed in this study:

1. Normative survey (documentary frequence) method.
2. Analysis of objectives to determine problems involved.
3. Analysis of instructional units to determine problems involved.
4. Prepare a list of activities.
5. Collect, organize and present a list of problems and activities for the oxy-acetylene block of the general metals area.

Summary and Findings--Problem-solving activities will present a variety of thought provoking situations and stimulate learning. In order for the problem-method to operate, the instructor must have a well planned and organized program. The instructor must be alert to the problems of the student and to the method of attack on the solution of the problem.

Bredt, Herbert, The Position of Arts and Crafts and The Contents of Such Courses Offered in Wisconsin's Schools. Plan B, M.S., 1962, Stout State University, 33 pages: Adviser, Dr. Christianson.

Brodt (continued)

Purpose of Study--To provide some type of guide for administrators, coordinators, and teachers in developing the most appropriate course offerings for their situations and to discover some of the qualities which may often be neglected in the professional preparation of the Arts and Crafts Teacher.

Method Used--A review of literature and a questionnaire.

Summary and Findings--The summary and findings are shown in the following conclusions: Forty-one per cent of the total respondents felt the program should be handled by both the Industrial Arts and Art departments. Eighty-one per cent believed that design should serve both esthetic and utilitarian needs. Knowledge of the fundamentals of design, technical knowledge of industrial hand processes, and skill in the craft to be taught were qualities most frequently lacking in the professional preparation of the Arts and Crafts teacher. Ninety-five per cent were in favor of combined classes. Eighty-one per cent of all reporting indicated a preference of combined classes. Grades 7-12 were the levels where it was felt that Arts and Crafts would be most beneficial.

Brickner, Duane C., Programming Non-Credit Adult Distributive Education Courses. Plan B, M.S., 1965, Stout State University, 18 pages: Adviser, Dr. Rudiger.

Purpose of Study--To produce descriptions of techniques used to promote "program" non-credit adult distributive education courses.

To provide a starting place for future development that would determine which techniques would be best to promote and develop "program" non-credit adult distributive education courses.

Method Used--An eight item questionnaire plus a letter of transmittal and a review of related literature were used.

Summary and Findings--Trends indicate that the "program" approach was being used by states who have many non-credit adult distributive education courses.

Bryan, Charles E., Automobile Power Accessories. Plan B, M.S., 1961 Stout State University, 46 pages: Adviser Mr. Morical.

Purpose of Study--To formulate a suggested instructional unit on power accessories to be used by auto mechanic instructors to be integrated with present curricula.

Method Used--A series of letters of transmittal to three leading automobile manufacturers to establish trends and frequency of repair on power accessories. Review of literature was also used.

Summary and Findings--Due to technological changes and the greater number of automobiles, there was found to be an increasing demand for more specialized training of auto mechanics in the area of power accessories.

Burns, Laverne A., Selected Shop Experiences Which Contribute to Student Behavior. Plan B, M.S., 1955, Stout State University, 39 pages: Adviser, Dr. Anderson.

Purpose of Study--To show a relationship between the experiences gained in industrial arts and improvemant in human behavior.

Method Used--The method employed in this study was a survey of existing literature pertaining to shop experience and their influence on student behavior.

Summary and Findings--The industrial arts shop is an ideal place to develop experiences, especially when they are organized to bring about desirable attitudes, habits, and skills necessary for proper adjustment. Through the personnel plan, project completion, and methodical procedure, students learn to develop leadership and followership, character training, social adjustment, cooperation, belonging, respect for authority, ambitiousness, and neatness.

The conclusion can be drawn that there is a definite relationship between original shop experiences and improved student behavior.

Carlson, Kenneth J., A Resource Unit On Metal Adhesives and Their Uses in Industrial Arts Classes and Industry. Plan B, M.S., 1963, Stout State University, 38 pages: Adviser, Dr. Wiehe.

Purpose of Study--To provide teachers of industrial arts and their students with more up-to-date information concerning the rapidly expanding field of epozy metal adhesives, along with information which would familiarize teachers with some of the more common methods used in the bonding operation by industrial organizations. A general view of epoxy resins that come ready for use in the school shop was also studied.

Method Used--Review of related literature and correspondence with metal adhesive manufacturers.

Summary and Findings--The growth of metal adhesives has been very rapid since its beginning. Metal adhesives are used extensively, and in almost every area of industry. Metal adhesives are replacing other fastening devices because they are better suited to the job. Further experiments with new types of metal adhesives should eventually result in more commercial processes used in the school shop. Metal adhesives may be shaped in many ways, some of which are adaptable to school use.

Chen, Tsan-Hsiang, Suggested Plan For Teaching Glazing of Ceramics in the Secondary Industrial Schools in Taiwan. Plan B, M.S., 1965, Stout State University, 52 pages: Adviser, Dr. Wigen.

Purpose of Study--To develop the objectives of ceramics in the industrial education program. To develop the teaching methods for the ceramics program. To develop the instruction units for the glazing of ceramics.

Chen (continued)

Method Used--Normative survey type of research.

Summary and Findings--To achieve proficiency in the production of ceramics, no step can be neglected. Glazing is the most important step and requires special techniques and imagination. Experience is particularly necessary. This is well illustrated by the fact that special ancient articles cannot be copied at the present time. By using the scientific method, glaze formulas which are now available for the ceramic industry were developed using local clay in Taiwan. Proposed instructional units for teaching glazing were outlined. Teaching shop courses without job, information, operation and assignment sheets is unsatisfactory.

Christensen, LaVerne P., The Improvement of Instruction In Industrial Arts Through The Selection of Projects Related To Industrial Practices. Plan B, M.S., 1961, Stout State University, 33 pages: Adviser, Dr. Wigen.

Purpose of Study--To obtain a composite picture of industrial practices in industrial arts in regard to the type of content that can best be presented to meet the needs and interests of senior high school students and the different methods which will best present this information.

Method Used--The method employed in this paper was the normative survey by the documentary frequency method.

Summary and Findings--It was felt that if the industrial arts program is to progress in the future, there has to be a change from the present concept of the industrial art program to one of more concern to relating the practices of industry to the student. This may be done through the setting up of a program which will give the student a full insight as to the processes of industry as they are today and as they will be tomorrow.

Christianson, Dean, A Resource Unit For House Framing. Plan B, M.S., 1963, Stout State University, 28 pages: Adviser, Dr. Prichard.

Purpose of Study--To select, identify, and analyze content material to be included in a resource unit for house framing.

Method Used--Reviews of related literature.

Summary and Findings--There is a need for more books in the field of light building construction that are up-to-date and which provide a better coverage of new methods and materials. There was found to be limited coverage of light building construction in the professional industrial arts magazines. Many of the available films are not up-to-date for new methods and materials.

Cilley, Richard N., The Development Of A Guide For Teachers Of Industrial Arts Design. Plan B, M.S., 1961, Stout State University, 60 pages: Adviser, Mr. Sommers.

Purpose of Study--To develop a guide for industrial arts teachers who wish to include design in their programs. To show the need for including design in industrial arts. To help a teacher recognize and evaluate good design. To assist the teacher who has no formal training in this area. To provide a guide to solving a design problem.

Method Used--Documentary research.

Summary and Findings--The design procedure, as presented, may be used by any teacher who wishes to teach design. It is clear, complete, concise and of sufficient detail to be included in the teachers course of study.

Suggested Design Procedures

A. Preparing the student for design.
   1. Freehand sketching
   2. Meaning of design-to student
   3. Meaning of design-to industry
   4. What is a good design?
   5. What is a poor design?
   6. Examples of good design.
   7. Definition of design.
   8. Critical observation of furniture and other household items.
   9. Teacher-student project design evaluation.
   10. Sample project idea development.

B. Product designing steps.
   1. Statement of problem.
      a. What are the functional needs?
      b. What to do?
   2. Determine limitations.
      a. Discuss problems, ask questions--who, why, when, where, what, and how?
      b. Prepare a list of specifications.
   3. Sketch ideas: sketch many ideas, all ideas, include many variations.
   4. Evaluate sketches: select two or three sketches, sketches that seem to have possibilities.
   5. Detailed sketch: rework best sketches-add more details.
   6. Evaluate best detailed sketch:
      a. Be critical, compare with specification
      b. Should any changes be made?
   7. Working drawing: Draw to scale and include all dimensions, materials, and other pertinent information.
   8. Evaluate working drawing:
      a. Does it meet the specifications?
      b. Should any changes be made?
   9. Construct scale model (if necessary), to answer questions or to solve mechanical problems in relation to assembling, proportion, strength, function, etc.

Cilley (continued)

10. Evaluate scale model:
    a. Does it meet the specifications?
    b. Should any changes be made?
11. Prepare a bill of materials:
12. Construct full-size product:
13. Evaluate:
    a. Use design evaluation form.
    b. Does it meet specifications?
    c. Should any changes be made?
    d. How could it be improved?
    e. How does it compare with the definition of design?

Clark, George R., Selected Principles of Design for the Improvement of Industrial Arts Projects. Plan B, M.S., 1955, Stout State University, 33 pages: Adviser, Dr. Wigen.

Purpose of Study--To analyze and interpret some basic principles, or fundamentals, of design to guide and assist industrial arts teachers and students in the use of creative design to improve the quality of contemporary industrial arts projects.

Method Used--The normative survey method of research was used in the study.

Summary and Findings--The principles of need, function, materials, methods, and beauty were selected because they seemed to be, both from the standpoint of expert opinion and logic, the guiding principles in any design. It was concluded that these principles were to be used only as a guide for creative thinking and not as a formula which would assure good design.

The design of an industrial arts project is controlled by available tools and machines which dictate the methods of processes.

Collier, James A., A Survey To Assist In Determining The Feasibility Of A Unit On Reaction Engines In the Power Mechanics Curriculum. Plan B, M.S., 1965, Stout State University, 33 pages: Adviser, Mr. Morical.

Purpose of Study--To determine what Stout State University Power Mechanics students felt about introducing a unit on reaction engines into the power mechanics curriculum.

Method Used--Review of literature.
Questionnaire.

Summary and Findings--Most power mechanics students believed that the study of reaction engines was a justifiable part of the course. Test group students believed that a study of reaction engines was more important to them in their major area of concentration than did control group students. Test and control students believed that a

Collier (continued)

unit on reaction engines should be a part of the post-high school program. Test group students believed that the study of reaction engines in the power mechanics course was more justifable than did control group students. Test group students favored individual research projects more than did control group students.

Cote, Michael A., A Descriptive Survey of Campers and Parents Concerning Their Evaluation of Westwood Hills Day Camp. Plan B, M.S., 1965, Stout State University, 38 pages: Adviser, Dr. Oetting.

Purpose of Study--It was the aim of this study to find the strengths and weaknesses of the program at Westwood Hills Day Camp.

Method Used--The study was conducted by the descriptive survey method. A survey questionnaire was developed and sent to the parents of two hundred campers.

Implications and Conclusions--(1) Not very many eleven and twelve year olds attend Westwood Hills Day Camp. (2) The easier a camp meal is to prepare, the better the campers like it. This may be because the easier meals are less likely to be spoiled during their preparation. (3) All camp meals were generally well accepted by most of the campers. (4) There was something about the Friday program that caused a discrepancy in the per cent of respondents who checked "liked very much" for its component parts. (5) Since almost three-fourths of the respondents chose the tribe they were in as the best one, it was felt that the camp leaders did a good job of building tribe spirit and loyalty. (6) The survey sample was representative of the total population of campers and parents. (7) Since there was no decidedly negative comments made about the camp, and sixty per cent of the respondents who made comments praised the program, it was concluded that the camp was well thought of by most people who had come in contact with it.

Coxon, Richard P., A Resource Unit In Industial Arts Courses For Girls. Plan B, M.S., 1961, Stout State University, 33 pages: Adviser, Dr. Christianson.

Purpose of Study--To construct a resource unit and to identify matieials for teaching units in an industrial arts course for girls.

Method Used--Review of related literature.

Summary and Findings--The philosophy and objectives in a beginning industrial arts course for girls are, in general, the same as for a beginning course for boys. Industrial arts for girls can be a vital part of the national education program. The developed resource unit contains a wealth of materials to aid in course construction, and to attain general educational goals. The electrical area becomes a vital part of the industrial arts program when it relates electrical principles and problems for everyday life situations.

Cvengros, Thomas P., Product Development: A Proposed Resource Unit With Emphasis On the Implications Of Product Development As It Relates To the Study of Industrial Graphics. Plan B, M.S., 1965, Stout State University, 41 pages: Adviser, Mr. Erickson.

Purpose of Study--To provide ideas and instructional content to be used by present and future industrial graphics instructors to supplement their programs with activities, concepts, and materials involved in product development; a newer phase in the broad field of industrial graphics.

Method Used--Documentary analysis.

Summary and Findings--An industrial graphics course simulating a product development situation in industry, provides an opportunity for instructors to break away from the traditional pattern of teaching drafting, and to impart a new and challenging experience to their students. The information and material presented in this resource unit provides a base from which an instructor may obtain ideas, concepts, and methods for constructing a course in product development.

Debrauske, John J., The Development Of A Unit In Mass Production. Plan B, M.S., Stout State University, 1964, 71 pages: Adviser, Dr. Prichard.

Purpose of Study--To develop a unit of instruction in mass production.

Method Used--A review of literature and experimentation with a trial unit.

Summary and Findings--Units of instruction should be developed into lesson plans to improve the efficiency of teaching. The units should be designed to meet various ability levels of students participating in the learning process. The unit provides means for meeting various ability levels. Direct discussions and demonstrations are advisable in guiding beginning students through introductory units. These units should be set up so that most of the time is spent in actual production. Content and methods of the units should vary with age and ability level of the students.

Delander, Allen R., An Analysis of Programed Instruction Techniques and Criteria In Terms of Their Application to Selected Instructional Units in the General Shop. Plan B, M.S., 1965, Stout State University, 40 pages: Adviser, Dr. Barnard.

Purpose of Study--To identify the general shop instructional units which could be taught more effectively by programed instruction.

Method Used--A normative study was conducted with the materials located in the library at Stout State University, Menomonie, Wisconsin. A frequency check was made to determine what instructional units should be included in a general shop.

Delander (continued)

Summary and Findings--The list of instructional units under the four subject matter areas is listed below. The number preceding the instructional unit indicates the number of programing techniques and criteria that the specific unit meets of the fifteen programing techniques and criteria used to determine if a unit should be programed. The instructional unit listed first under the area heading should be the first to be programed, with the others being utilized in descending order.

	Woodwork
11	Characteristics of plywood and veneers
11	Kinds and sizes of nails
11	Kinds and sizes of screws
10	Effects of moisture on wood
10	Manufacture and use of abrasives
9	Kinds of lumber
9	Manufacture and use of glue
9	Preparation and application of finishes
9	Safety
7	Joints and their use
4	Hand tools and their uses
4	Machines and their use

	Metalwork
13	Forging
12	Colors in heat treating
12	Kinds of taps and dies
12	Proper care and use of welding equipment
11	Hems and seams
10	Manufacture and use of abrasives
10	Manufacture of iron and steel
10	Methods of cutting threads
9	Finishes
9	Riveting
9	Safety
9	Soldering
8	Forming metals
8	Methods of drilling
4	Kinds and uses of hand tools
4	Kinds and uses of machines

	Drawing
12	Occupational information
11	Conventions and symbols
11	Dimentioning
10	Drawing paper
10	Types of lettering
9	Graphic representation
9	Lines--their meaning and use
8	Circles and parts of circles
8	Isometric projection
8	Oblique projection
8	Oblique drawing
8	Orthographic projection
8	Sectional views
4	Care and use of drawing tools

	Electricity
13	Fundamental laws
12	Industry and occupations
11	Electricity and communications
11	Symbols
9	Electricity and heat
9	Electricity and power
9	Generators and transformers
9	How electrical energy is produced
9	House wiring
9	Magnetism
9	Measuring electricity

Dietz, Curt, A Survey And Analysis Of House Prefabrication. Plan B, M.S., 1965, Stout State University, 40 pages: Adviser, Dr. Rudiger.

Purpose of Study--To develop a resource unit on the prefabricated house which can be included in a building construction course.

Dietz (continued)

Method Used--Survey of available literature. Twenty-four letters were sent to leading home manufacturers requesting general and specific information regarding entire operations. Letters were also sent to companies which manufacture house building machinery and requested photographs and explanations of machines.

Summary and Findings--Trends were: More homes in the future built by prefabrication. Prefabricators experimented with metals and concrete for use as superstructure-large scale attempts failed. The prefabricated housing industry has been hindered in its development by restrictive housing codes and consumers desire for uniqueness. Factory production is largely panelization. Manufacture of pre-cut houses or complete houses are in finished sections. Majority of the companies studied sell houses in smaller panels which are assembled on the site.

Dosedel, Robert L, A Historical Study Of The Development Of The West Allis School of Vocational, Technical, And Adult Education. Plan B, M.S., 1965, Stout State University, 61 pages: Adviser, Dr. Rudiger.

Purpose of Study--To record the chronological order of events that have led to the present system of Vocational, Technical, and Adult Education in West Allis, Wisconsin.

To provide data which could lead toward the development of future programs.

Method Used--Review of literature pertaining to the history of the school.

Interviews of all personnel with a knowledge of the history of the school.

Analyze the material for significance in the history of the school.

Summary and Findings--The study showed that the school has kept up with new developments and the changing needs of the people by means of a modern philosophy.

Edman, Neal E., Suggested Projects For Junior High Ceramics. Plan B, M.S., 1956, Stout State University, 31 pages: Adviser, Dr. Anderson.

Purpose of Study--The development of projects which would interest and motivate students, as well as contribute to personality growth and good design concepts.

Method Used--Criteria for these projects were formulated and based on design and objectives for this area. The projects were designed and developed in clay.

Summary and Findings--The projects, as developed, meet the purpose of this study. These projects will be offered to students in ceramics as motivating projects. The results obtained by the use of these projects will determine whether or not they create student interest in ceramics and the ceramic industry, and motivate students in creative design.

Embretson, Oscar A., Instructional Units in Machine Shop. Plan B, M.S., 1953, Stout State University, 74 pages: Adviser, Dr. Wigen.

Purpose of Study--To provide a series of jobs to teach skills, techniques, fundamentals and theory of machine shop.
To direct the student toward a decision for the machinists trade.
To improve and provide instructional material in schools that are in need of assistance.

Method Used--The method used in this investigation was to review expert opinion through the study of literature in the areas of Machine Shop throughout vocational and secondary education.

Summary and Findings--

1. The need for machine shop instructional material was apparent after visiting book displays at conventions.
2. Lack of good design was apparent from a survey of other machine shop courses of study together with old units which needed a revision badly.
3. The units were of value not only to the day-time student but to the trade extension and evening school adult programs as well.
4. These units can only be effective through the best possible coordination of educational agencies and industry, keeping the instructor informed on what's new in industry, and a constant vigilence toward keeping up-to-date materially and professionally in the field of machine shop.
5. The list of jobs appearing in the study are:
    - a. To Drill and Tap
    - b. To Turn a Lathe Arbor
    - c. To Turn a Taper
    - d. To Square a Cast-Iron Block
    - e. To Make a V Block
    - f. To Make a Tapered Spindle
    - g. To Cut a Right- and Left-Hand Thread
    - h. To Make a Tap Wrench
    - i. To Make a Double Axle Shaft
    - j. To Make a Screwdriver
    - k. To Make a T-Tap Wrench
    - l. To Make a Shaper Block
    - m. To Turn a Press-Fit Head-Type Bushing
    - n. To Make a Machinists Clamp
    - o. To Cut A Spur Gear and an Internal Keyway
    - p. To Make a Hand Vise
    - q. To Make a Set of Candleholders
    - r. To Make a Fixture for Grinding Milling Cutters
    - s. To Make Trammel Points
    - t. To Plan Procedure and Make a Machinists Vise

Embretson (continued)

Supplementary Projects:

a. Monkey Wrench
b. Hack Saw
c. Lawn Sprinkler

Eversoll, Robert, Mass Production In The Union High School, Union Grove, Wisconsin. Plan B, M.S., 1965, Stout State University, 35 pages; Adviser, Dr. Sommers.

Purpose of Study--To help the woodworking instructor of Union High School, Union Grove, Wisconsin, perform a production experiment and develop an outline to follow when doing mass production in the school laboratory.

Method Used--Review of literature.

Summary and Findings--A unit on mass production fulfills the objective of interpreting industry. One production unit per year is sufficient. Mass production is a more complete procedure of teaching about industry. Production control is found to be a vital phase of the mass production experience. Students should be given the opportunity to see the importance of the individual in our industrial society through assembly line experiences. Mass production helps sell the industrial education program through public relations.

Everts, Richard J., The Implementation Of Programed Instruction Into Basic Electricity. Plan B, M.S., 1965, Stout State University, 40 pages: Adviser, Dr. Ruehl.

Purpose of Study--To research the effects of the implementation of programed instruction in the curriculum to see how well it met the objectives of the courses and the school.

Method Used--Review of related research.
Student and faculty reactions to the program were studied.
Results on tests
Tone of discussion sessions.

Summary and Findings--More students can be handled by one teacher with the present facilities without taxing either the facilities or the faculty beyond a reasonable load.

Falck, Edward A., The Development Of Criteria For The Collection, Preparation, And Use Of Correspondence From Business And Industry. Plan B, M.S., 1964, Stout State University, 23 pages: Adviser, Dr. Courtney.

Purpose of Study--To show the methods of developing a training unit of materials, namely correspondence, and the eventual development of these materials.

Falck (continued)

Method Used--Review of related literature.
Correspondence requesting material to be used for training students in secretarial science classes.

Summary and Findings--Summary of Criteria For Preparation of Material
To be of value, the final product must represent excellence. Letters should be actual correspondence from business and industry; be checked over for length, terminology, grammar, spelling, punctuation, and phraseology; be preceeded by a terminology list inherent to the industry; be prepared for dictation; and be put on some form of dictation equipment.

Feldmeier, Raymond F., Resource Unit on Photography. Plan B, M.S., 1964, Stout State University, 38 pages: Adviser, Dr. Ruehl.

Purpose of Study--To gather data and sources of data on the photoelectric effects of controlling and producing electricity.

Method Used -- Review of literature.

Summary and Findings--The photoemissive, photoconductive, and photovoltaic effects have many applications that are similar, yet each one has its own distinct advantage when used. Since this is a relatively new area, more emphasis should be placed on it in industrial arts electronics classes.

Fergen, Donald L., The Development Of A General Metals Shop For Kennewick, Washington. Plan B, M.S., 1955, Stout State University, 29 pages: Adviser, Dr. Wall.

Purpose of Study--The problems were:

1. To prepare and justify a basic list of essential equipment for the new general metals shop.
2. To determine whether the estimated cost for equipping the shop satisfactorily would stay within the budget limitations.
3. To plan a shop layout that provided a feasible plan for future additions to the equipment.

Method Used--Review of literature.

Summary and Findings--The results of this study may be used as a guide for organizing and equipping a general metals shop in the Kennewick School.

Since the study is only a guide, it is inevitable that departures will have to be made from the proposals for various reasons that will appear when the actual work of organization is begun. However, the procedures outlined in the study should be followed as closely as possible.

Frye, Lloyd Ray, *A Proposed Resource Unit For A General Metals Course For Waterford Union High School*. Plan B, M.S., 1965, Stout State University, 59 pages: Adviser, Mr. Klatt.

Purpose of Study--To develop a resource unit which applies to general metals for Waterford Union High School.

Method Used--Review of related literature.

Summary and Findings--The general metals shop has several unit courses. A separate unit must be designed for each area. The units are organized separately but more than one will be taught at one time. Basic projects are developed for each area to acquaint the student with the tools and procedures common to that unit. The unit was designed as an introductory course in the metals field.

Giovanoni, Joseph B., *Resource Unit in Air Conditioning*. Plan B, M.S., 1963, Stout State University, 21 pages: Adviser, Mr. Kufahl.

Purpose of Study--To select and list information about air conditioning to be integrated in advanced sheet metal courses for Wisconsin secondary schools.

Method Used--Review of literature.
Questionnaire.

Summary and Findings--The industrial arts teacher, teaching sheet metal, should keep up with technical advancements in the air conditioning industry. There is a need for organizing air conditioning materials to be used in a comprehensive high school. Cooperation is necessary between industrial arts teachers and institutions offering courses in air conditioning. Films on air conditioning for high school used were found to be limited.

Glavan, William J., *Science In Industrial Arts*. Plan B, M.S., 1963, Stout State University, 39 pages: Adviser, Dr. Anderson.

Purpose of Study--To study current points of view as they apply to basic science concepts in the teaching of industrial arts subjects. To note the direction in which the science and industrial arts educators are programing activities in the described manner. To suggest a possible solution to the problem based on conclusions drawn from the analysis of the study.

Method Used--Review of related materials.
Questionnaire.

Summary and Findings--It is feasible to apply basic science principles to the activities in the industrial arts laboratory. Proponents of "Research and Experimentation" place emphasis on the construction of simple science apparatus and de-emphasize the traditional projects. Industrial arts educators are cognizant of the contributions made to the teaching of industrial arts by science educators. Due to the tremendous advance of science and technology, industrial arts educators must continually up-grade their programs so that students get the best training possible.

Goold, V. C., The Development of Training Materials For Numerical Control In A Machine Tool Training Program. Plan B, M.S., 1964, Stout State University, 52 pages: Adviser, Mr. Face.

Purpose of Study--To develop training materials for numerical control which could be manufactured at a nominal cost and be utilized on the scale required for demonstration and teaching purposes.

Method Used--Review of related literature.

Summary and Findings--The use of the training device while lecturing on numerical control aids the teacher in explaining the various component parts of a numerically controlled machine tool. The device also serves as a visual aid. One disadvantage found was that the device cannot be used to teach the student how to read industrial tapes.

Graham, Lawrence E., A Proposed Arts and Crafts Program For Scarboro Community Center at Oak Ridge, Tennessee. Plan B, M.S., 1963, Stout State University, 53 pages: Adviser, Dr. Wigen.

Purpose of Study--To revamp the existing arts and crafts program for the playground at Scarboro Community Center according to the age levels and interests of the children of his community.

Method Used--Normative survey.
Review of related literature.

Summary and Findings--The objectives of recreation are realized through proper program planning and are important in evaluating activities with respect to their attainment. Many values are derived from the arts and crafts program and a well-rounded program is more effective than one limited in such activities. The leader is essential to a good program and should be competent in his subject and be able to impart it to others. The arts and crafts program should be more than a long list of projects or activities.

Green, Ronald J., The Integration of Design In The Teaching of General Metals. Plan B, M.S., 1965, Stout State University, 37 pages: Adviser, Dr. Face.

Purpose of Study--To prepare a plan of instruction for teaching functional design.

Green (continued)

Method Used--Action research type.

Summary and Findings--To understand functional design it must be analyzed and certain principles sought out. When these principles are known and familiar, good and bad design will become apparent to the observer.

To actually design, the individual must have skills, knowledges and understandings of the subject. One of the more basic of these is the sketching of freehand drawing which is essential for the development and communication of ideas. To develop and practice a design procedure provides a format for the logical progression of an idea. It keeps the student oriented and prevents the wasteful wandering that sometimes causes loss of good ideas.

The teacher must concern himself with every design problem, because he cannot present a format and expect the student to follow along, He must guide, criticize and recommend until the student has enough self-assurance to critically analyze the problem he intends to solve.

The desired affect is to develop self-reliance, teach skill necessary for that problem and provide an atmosphere of achievement that makes the student feel he has done something worthwhile. The study regarded these goals as significant and important. They provide a reply to the question: Why do teachers teach? To see the visible evidence of what he has taught to his students.

Guptill, Maurice F., Electricity In The Home: A Resource Unit For Use In a Junior High Unified Core Program. Plan B, M.S., 1958, Stout State University, 60 pages: Adviser, Dr. Wigen.

Purpose of Study--To investigate the possibilities of combining general science electricity, general mathematics and industrial arts electricity at the junior high level into a unified core.

Method Used--A review of literature was the method used for this study.

Summary and Findings--The following conclusions were made as a result of this study:

1. The philosophy and objectives of the junior high school can be implemented in a unified core type program.
2. The subject matter fields of general science electricity, industrial arts electricity, and general mathematics can be integrated into a unified core program, around the central theme of the use of electricity in the home.
3. The integrated unit shows ample opportunity for implementation of the objectives of the junior high school.
4. A resource unit for use in the junior high school core-type curriculum, constructed around industrial arts as a center, has been developed.

Hallingstad, Paul D., The Selection and Desirability of Instructional Units In Wisconsin Vocational Agriculture Shop Programs. Plan B, M.S., 1963, Stout State University, 46 pages: Adviser, Dr. Rudiger.

Purpose of Study--To determine through the opinions of selected vocational agriculture shop instructors, what units of instruction should be included in a desirable shop course. To provide a means of evaluating the present instructional units being taught in a vocational agriculture shop course. To provide vocational agriculture instructors with an analysis of course content.

Method Used--Review of literatue.
A survey of opinions of vocational agriculture instructors to ascertain the desirability of specific instructional units in farm shop courses.

Summary and Findings--The five basic units of farm machinery servicing, arc welding, farm carpentry, electricity and farm power, and oxy-acetylene welding should receive the most consideration in a farm shop course. A knowledge of safety and safe procedures received 100 percent response in nearly all the limited areas in which the unit was listed.

Hammill, John J., Instruction Units in Copy Preparation For Offset Lithography. Plan B, M.S., 1963, Stout State University, 60 pages: Adviser, Mr. Whydotski.

Purpose of Study--To analyze, identify, and select content material to be included in instruction units of copy preparation techniques for the high school or college lithography program.

Method Used--Review of literature.

Summary and Findings--The need for copy preparation instruction sheets were apparent after reviewing available literature in the area. The units can be of value to high school or college graphic arts teachers, committees, or individuals interested in the area of copy preparation. These units can only be effective through the best possible relationship between educational forces and industry. Keeping the instructor aware and informed of what's new in industrial circles and providing him with up-to-date materials and equipment in the field of graphic arts was suggested as a result of the study.

Hanke, Arthur A., The Development of an Advanced Placement Program For Industrial Graphics at Stout State College. Plan B, M.S., 1962, Stout State University, 42 pages: Adviser, Mr. Erickson.

Purpose of Study--To provide qualified students an opportunity through advanced placement to participate in a more enriching, challenging, and meaningful experience in Industrial Graphics.

Hanke (continued)

Method Used--Review of related literature.

Summary and Findings--Advanced placement in Industrial Graphics offers, to qualified students, an opportunity to accelerate their technical program in order to provide them with a more enriching, challenging, and meaningful experience in Industrial Graphics. As the Advanced Placement Program in Industrial Graphics becomes more and more extensive, secondary school teachers of related Industrial areas and college personnel will begin to work on a more cooperative basis. Working with advanced groups of students will serve as a stimulus for college personnel to take steps to high achievement. Advanced placement tends to eliminate duplication of studies and waste of time by the students and teachers. Students who have been advanced to IE-201 are given an opportunity, because no credit is issued for by-passing IE-101, to schedule more advanced courses.

Hansen, Donald J., A Documentary Study of Industrial Design. Plan B, M.S., 1965, Stout State University, 45 pages: Adviser, Dr. Anderson.

Purpose of Study--To define industrial design and to bring to light evidence of the trends in the education of an industrial designer.

Method Used--Review of literature.

Letters of inquiry pertaining to the industrial designers competencies, his education, and his field of work were sent to the professional societies.

Summary and Findings--

1. The industrial designers concern is not just the shape or color of a product, but the whole production of the product and its use.
2. There is a single professional organization which is named the Industrial Designers Society of America (IDSA).
3. The professional industrial design societies have been concerned with design education.
4. Not all schools offering degrees or majors in industrial design have been approved or accredited by any one agency.
5. The philosophies of schools offering majors or degrees in industrial design vary considerably as shown in the types and amount of courses needed to complete the curriculum.
6. The philosophies and course offerings vary from a strong background in creative art to a strong background in engineering or mechanical processes.
7. It has been shown what background creates the best industrial designer.
8. The largest percentage of practicing designers had a strong liberal arts background.

Hanson, Robert K., The Selection and Classification of Industrial Instructional Materials For Use In Secondary School Drafting Courses. Plan B, M.S., 1959, Stout State University, 36 pages: Adviser, Dr. Wigen.

Purpose of Study--To secure various types of industrial instruction in secondary school drafting programs.

Method Used--Normative Survey.

Summary and Findings--Instructional materials are valuable for use by industrial arts teachers in the improvement of their instruction. Industry is an excellent source for instructional aids. Materials may be of greater use to the teacher as a part of his curriculum content if it is classified and arranged in tabular form according to meaningful content of instruction. Tabular classification as presented in this study should be constantly revised as new materials become available.

Hatopp, Hans W., A Proposed Plan For The Application of Principles of Mathematics Pertaining to Problems in Drafting Courses. Plan B, M.S., 1960, Stout State University, 60 pages: Adviser, Dr. Wigen.

Purpose of Study--To develop in the high school drafting student a practical rather than theoretical use of mathematics. To reveal how mathematical abstractions and symbols can be applied to practical applications in a high school drafting course.

Method Used--The normative survey procedure was used in this study.

Summary and Findings--

1. There seems to be a definite need for the coordinating of Industrial Arts and Mathematics.
2. Industrial Arts courses provide a good environment for the application of mathematical principles.
3. Educational experts feel that by coordinating subjects, better learning takes place.
4. Experts indicate that more occupations are becoming kindred to one another.
5. Educational experts feel that broad experiences are a better educational foundation than narrow experiences, especially in the students early years.

Hemauer, Alfred, A Suggested List of Problems and Activities for the Forging Block of the General Metals Area In Industrial Arts. Plan B, M.S., 1953, Stout State University, 39 pages: Adviser, Dr. Wigen.

Purpose of Study--To plan a problem and activity method of instruction in order to teach the forging block of the general metals area in the industrial arts program on a life-situation basis.

Method Used--The method employed is the normative survey by documentary frequency.

Hemauer (continued)

Summary and Findings--This study points out advantages, disadvantages, and criticisms of the problem-solving and activity method of teaching. A list of problems and activities that may be used in the forging **block** of the general metals area in industrial arts is presented. A sample instruction unit, complete with the job sheet, operation sheet, information sheets, and assignment sheet, is included and designed to teach the forging block.

Hintz, Walter R., A Survey of Skilled Workers In Selected Technical Fields. Plan B, M.S., 1961, Stout State University, 29 pages: Adviser, Dr. Rudiger.

Purpose of Study--To ascertain if the training program now being offered in the Charlotte Vocational Education Center is fulfilling the present needs of several industries.

Method Used--Questionnaire.

Summary and Findings--The machine tool operation area has a great need for additional skilled workers. Auto mechanics ranked second in terms of skilled workers needed to be trained. The need of skilled workers warrant an acceleration of both programs. The electrical and chemical areas have the greatest need for training.

Hogan, Donald, A Proposed Source of Study in Foundry in the Senior High School. Plan B, M.S., 1956, Stout State University, 73 pages: Adviser, Dr. Anderson.

Purpose of Study--To develop a course of study in foundry for the industrial arts program in the public high school in the city of Muskegon, Michigan.

Method Used--The methods used in this study consisted of a survey of available literature in the foundry field and personal observation.

Summary and Findings--The units of instruction consist of a list of what is to be taught, methods, and the aids that are to be used. Each unit is complete in itself and shows direct relationship to the entire plan.

The evaluation serves as a means of checking the effectiveness of the materials and methods, It serves to check the progress of the pupil, motivate him and revising the course of study.

Holman, Ronald J., An Introductory Unit of Instruction on Electrical Servomechanisms. Plan B, M.S., 1960, Stout State University, 37 pages: Adviser, Dr. Ruehl.

Purpose of Study--To determine which instructional materials are best suited to an introductory unit of instruction on servomechanisms.

Method Used--Review of literature.

Experiments conducted in the laboratory to determine which of several experiments and other instructional aids would best contribute to the learning process.

Summary and Findings--Unit may be incorporated with present electrical courses.

Hoover, Roger., A Resource Unit for the Welding of Type 304 Stainless Steel, Using Common Welding Processes In Wisconsin Vocational Schools. Plan B, M.S., 1963, Stout State University, 55 pages: Adviser, Mr. Klatt.

Purpose of Study--To identify, select, and determine what instructional material and technical material and information regarding the welding of Type 304 stainless steel appears most frequently in the welding training program in Wisconsin Vocational Schools. To present a guide for welding instructors in Wisconsin Vocational Schools for the oxyacetylene, tungsten inert gas, and arc welding of Type 304 stainless steel.

Method Used--Review of literature.
Documentary survey of instructional units.
Interviews with qualified personnel.

Summary and Findings--See chapters two through eight of the text.

Hunsbusher, Richard, An Analysis of 25 Selected Home Workshops In Terms of Jobs, Equipment, And Layout. Plan B, M.S., 1956, Stout State University, 30 pages: Adviser, Dr. Anderson.

Purpose of Study--To analyze the selected home workshops with intention of determining the standard practices of home workshop owners.

Summary and Findings--

1. About one-half of home workshop owners have had no formal shop training in school.
2. The majority of home workshops are located in the basement of the home.
3. About one-third of the home workshops have only one electrical circuit which is rated at 15 amperes, rather than 2 independent circuits.
4. About 3/4 of them do not have enough electrical outlets.
5. The most common work-bench is made up of a 2x4 frame and a 2" top.
6. The utility or metal vise is the most common type used at home.
7. A bench saw is usually the first power machine purchased, followed by a jointer.

Hunsbusher (continued)

8. Most machinery is powered by an individual motor.
9. A tool panel is the most common method of storing tools.
10. Home repairs and furniture construction, in this order, are the most common types of jobs done by home workshop owners.
11. About 1/3 of homeworkshop owners derive income from their shops.
12. The average owner spends about 11 hours per week in his shop.
13. Only a small percentage have a fire extinguisher and a first aid kit in their shops.
14. The average owner has approximately $1000 invested in his shop.

Jackson, Peter A., The Selection and Classification of Industrial Instruction Materials for Use in Secondary School Plastics Courses. Plan B, M.S., 1959, Stout State University, 41 pages: Adviser, Dr. Wigen.

Purpose of Study--To secure various types of industrial instructional materials that will aid in the improvement of instruction in secondary school plastics courses.

Method Used--The normative survey type of research was used in this study. Letters were formulated and sent to industrial concerns in order to obtain available instructional materials.

Summary and Findings--

1. Industrial arts leaders indicated that industrial instruction materials are valuable for use by the industrial arts teachers in the improvement of their instruction.
2. Industry is an excellent source for instructional aids. Industrial firms have a wealth of material, a large portion of which is available free of charge or at a very low cost simply upon request. The material covers a variety of subjects and is concerned with the most modern practices.
3. Industrial instructional materials may be of greater use to the teacher as a part of his curriculum content if it is classified and arranged in tabular form according to meaningful content of instruction.
4. The tabular classification should be constantly revised as new materials become available.

Jacobson, Donald A., A Comparison of the Significant Metalworking Operations in Industry to Those Taught in the Senior High Schools in the St. Paul Area. Plan B, M.S., 1961, Stout State University, 15 pages: Adviser, Dr. Wiehe.

Purpose of Study--To determine the objectives, methods of teaching, and operations which currently exist in the St. Paul Area Schools.

Method Used--Survey questionnaire.

Jacobson (continued)

Summary and Findings--There appears to be a positive correlation between the operations currently taught in the metal shops of the St. Paul area with the operations used in the metal working industry. There are references of metalworking operations that can be used as guides in selecting equipment for metal shops. There are economic, space, and safety limitations that prevent all of the forty-three operations of this study from being taught by performance of skill in the metal shops of the St. Paul area.

Janiak, Matthew A., A Proposed List of Instructional Units, Projects, and Floor Plans for Carpentry in a Vocational School in Palau, Western Caroline Islands. Plan B, M.S., 1962, Stout State University, 27 pages: Adviser, Dr. Christianson.

Purpose of Study--Purposes include the following:

1. to determine which units were considered most important by various authorities in the field of carpentry,
2. to select units which were applicable to the specific situation in Palau, and
3. to develop a list of suggested projects which would incorporate these instructional units into a feasible teaching plan and a possible floor plan for the carpentry shop.

Method Used--Review of related literature.

Summary and Findings--Selection of the instructional units was based on:

1. Review of the needs of the students of the vocational school.
2. Facilities available.
3. Type of projects feasible for the vocational school in this area.

This is a highly satisfactory method for the selection of instructional units and projects because:

1. It can be used as a basis for the teaching plan.
2. It provides for the selection of projects which are meaningful to the students.
3. It allows for the arrangement of instructional units in a logical teaching order.

This method of analysis can and should be employed in any of the areas to be developed in a vocational school.

Jenson, Paul C., Industrial Arts Program as Related to the Community Needs of Eleva-Strum Central High School. Plan B, M.S., 1963, Stout State University, 46 pages; Adviser, Dr. Prichard.

Purpose of Study--To determine the vocational opportunities within the community and to receive help in formulating the program at Eleva-Strum.

Method Used--Questionnaire.

Jenson (continued)

Summary and Findings--Many graudates seek vocational employment away from home communities. Woodwork and metalwork are the two favorite subjects of the students. The fact that there is a large physical project may be part of the cause for the popularity of these two subjects. The two main reasons that were given by the students who said they were not going to take industrial arts were: (1) it was too closely related to agriculture, and (2) they didn't think the course could help them in their vocational and educational plans. The students taking industrial arts, and those not taking the course, had similar goals in their future vocational plans.

Johnson, Carl H., A Survey of Content For a Proposed Course of Science Applicable to Day-Trade (Vocational) Printing. Plan B, M.S., 1962, Stout State University, 18 pages: Adviser, Dr. Rudiger.

Purpose of Study--To ascertain the need of a science course applicable to printing and, if needed, to establish the probable course content most suitable for such a course for students of the Day-Trade (Vocational) status who are pursuing the printing occupations.

Method Used--A review of trade trends and predictions.
Questionnaires concerning proposed course content were sent out.

Summary and Findings--Present facilities and availability of an instructor were not problems. Printing instructors were in favor of a science course. The course should equally emphasize the processes of lithography and letterpress. Color and offset photography instructional units received strong preference.

Johnson, David L., Numerical Control Training In A Vocational Machine Tool Program. Plan B, M.S., 1965, Stout State University, 22 pages: Adviser, Dr. Rudiger.

Purpose of Study--To determine the need for training post-high school vocational machine shop students in the use of numerically controlled machine tools.
To determine what vocational machine shop student should learn about numerically controlled machine tools in the way of related information.

Method Used--Review of literature.
Visits to manufacturers and users of numerically controlled machine tools.
Questionnaries sent to manufactures and users of numerically controlled machine tools.
Questionnaries sent to instructors teaching courses in the related area.

Summary and Findings--Programs range from a three day instructional program to a four year apprenticeship. Some companies send personnel with their machines to teach users and maintenance men how to use and care for them. Classes offered should include information concerning the sociological effect of mechanization and automation so that the students will have a better understanding of the new technology and its effect on society. Classes offered should also include tool design, tool geometry, and tape preparation methods.

Johnson, Richard J., The Development of a Unit In Mass Production For Industrial Education 103, Woodworking. Plan B, M.S., 1965, Stout State University, 40 pages: Adviser, Dr. Piersall.

Purpose of Study--To construct a Mass Production Unit in Woodworking.

Method Used--Review of literature.
Class discussion and planning.

Summary and Findings--The construction of a mass produced product can be a meaningful experience to both the student and the instructor if properly planned and organized. It seemed that the unit on mass production provided an equal opportunity for the student to develop an understanding of the woodworking industry, tools, and machines. The students in the mass production section seemed to have a greater interest in the course. Students gained an appreciation for time and a consciousness for motion and movement in the study.

Jokkel, William G., A Suggested List of Problems and Activities for the Bench Metal Block of the General Metals Area in Industrial Arts. Plan B, M.S., 1953, Stout State University, 35 pages: Adviser, Dr. Wigen.

Purpose of Study--To plan a problem solving and activity method of instruction in order to teach the bench metal block of the general metal area on a life-situation basis in the industrial arts program.

Method Used--Normative survey procedures were employed to furnish the necessary data pertaining to this problem.

Summary and Findings--This paper briefly pointed out the advantages and disadvantages of the problem-solving and activity methods of instruction in teaching the bench metal block of the general metals area. A list of problems and activities was also suggested to be used as learning units for the bench metal block. An effort was also made to correlate the flexible approach to teaching industrial arts.

Kane, Roger, An Introductory Resource Unit on Inert Gas Shielded Welding Using A Consumable Electrode. Plan B, M.S., 1964, Stout State University, 26 pages: Adviser, Mr. Halfin.

Kane (continued)

Purpose of Study--To present a resource unit demonstrating theory, mechanical function, and types of equipment for the Metallic Inert Gas Process, a division of electric arc welding.

Method Used--Correspondence with manufacturers.
Study of related literature available.
Interview experienced welders in the field.
Experimentation by welding with a MIG set-up.

Summary and Findings--The MIG welding process plays an important part in the welding industry today. Thus, it should be a necessary part of the training for advanced welding classes. Since the cost of installing these welding machines would be prohibitive in most public school systems, it seems advisable to limit their use to the students in large trade schools.

Kane, Jerome H., A Proposed Industrial Arts Program For Grades Seven and Eight At Waller School, Burlington, Wisconsin. Plan B M.S., 1962, Stout State University, 27 pages: Adviser, Dr. Swanson.

Purpose of Study--To present the industrial arts areas that should be part of the industrial arts curriculum in the junior high school. To present physical shop plan sizes that are necessary and costs involved in setting up such a program.

Method Used--Survey of literature.

Summary and Findings--Industrial arts at the junior high school level should be of an exploratory nature. Areas proposed for the curriculum were selected upon several criteria. The criteria were:

1. needs of the students as future consumers,
2. philosophy and objectives of industrial arts,
3. integration with the high school industrial arts programs, and
4. the survey of literature.

The areas proposed were:

1. woodworking,
2. drafting,
3. metalworking,
4. electricity,
5. plastics, and
6. power mechanics

The size of the industrial arts shop should be based on the type of shop to be taught and the number of students to be handled at one time. The industrial arts objectives should determine the quality and type of equipment to be purchased.

Kadotani, Richard H., Selected Basic Fundamentals of Freehand Drawing. Plan B, M.S., 1955, Stout State University, 50 pages: Adviser, Dr. Wigen.

Kadotani (continued)

Purpose of Study--To make available the procedures and methods of the selected basic fundamentals of freehand drawing in order to aid the neophyte student of freehand drawing in a realistic and pleasing approach.

Method Used--The method used in this study was a survey of the literature on freehand drawing pertaining to pencil as the medium.

Summary and Findings--This study dwelled upon eleven selected fundamentals which were selected from ten sources. The selected fundamentals were grouped into four areas, namely: (1) materials and equipment, (2) lettering, (3) form and outline, and (4) light and shade.

This study revealed that there were definite basic fundamentals and that there were definite procedures and methods. Thus, how much the neophyte learns depends upon how he utilizes these factors.

Kaul, William H., An Occupation Survey of Rhinelander, Wisconsin. Plan B, M.S., 1964, Stout State University, 25 pages: Adviser, Dr. Rudiger.

Purpose of Study--To ascertain the preparation needed by the prospective employees in choosing, entering, and progressing in the occupations that are available in the Rhinelander area.

Method Used--Personal interviews and a prepared questionnaire.

Summary and Findings--(1) New jobs were found to be available if qualifications were met. (2) There was an apparent need to emphasize academic subjects at high school level. (3) Vocational schools should put more emphasis on trade and human relationship courses. (4) There should be a closer relationship between high school, vocational school, and industry. (5) Largest number of openings were at skilled occupational levels. (6) Generally, employees lacked mechanical skills. (7) More employers required special training.

Keller, Donald J., A Resource Unit On Hard Facing For Arc and Gas Welding In Senior High School. Plan B, M.S., 1961, Stout State University, 53 pages: Adviser, Dr. Wigen.

Purpose of Study--To identify, analyze, and select information for preparing a resource unit on hard facing for a senior high school welding course. Secondary purposes of the study were to give knowledge of hard facing as to what it is, why it is used, and where it is used.

Method Used--The documentary method of research was used in this study.

Summary and Findings--The material in the resource unit was divided into six main divisions. The significance of the topic gave the purposes of

Keller (continued)

the resource unit, specific objectives of hardfacing, and the national objectives of industrial arts. The outline gave a table of contents for the material that was presented in the resource unit. The possible outcomes were those developed from the course objectives. The analysis gave basic operations of hardfacing and the activities were suggested as aids to be used in teaching. An achievement test, performance test, and a rating scale for personal-social traits were included as part of the evaluation techniques. The bibliography included hardfacing references, periodicals, and supply companies of hardfacing material and equipment.

Knopp, Howard P., A Proposed Resource Unit On Heat and Light For Industrial Arts Electricity In Secondary Schools. Plan B, M.S., 1957, Stout State University, 43 pages: Adviser, Dr. Wigen.

Purpose of Study--To develop resource units in heat and light to become part of the overall electrical resource unit to be used in Wisconsin secondary schools.

Method Used--A normative survey type of research using the documentary frequency method was used to determine which books and pamphlets had the most suitable information on heat and light.

Letters were sent to electrical manufacturing concerns in order to determine the type and amount of free or inexpensive material available on heat and light.

Summary and Findings--The significance of a resource unit in heat and light was brought out in the study. Objectives and possible outcomes were stated to establish a sound basis of value. In order to arrive at an understanding of what a resource unit on heat and light should accomplish, a breakdown of doing and knowing factors were listed under appropriate headings. An outline of the resource unit including a sample topic outline was included so the reader would be able to use the resource unit effectively. The main body of the study consisted of the various topic headings broken down into references, audio-visual references, suggested means of presentation, and suggestions for projects or group activities. A list of film sources and a list of company addresses were also included.

Krejcie, Robert V., A Study to Determine Vocational Training Chosen Between 1959 and 1965 By Milwaukee County Boys At the Wisconsin School For Boys, Wales, Wisconsin. Plan B, M.S., 1965, Stout State University, 13 pages: Adviser, Dr. Rudiger.

Purpose of Study--To provide information about parolees which would aid in altering and improving the subject matter being taught in the vocational department.

To provide data that would lead to staff and program improvements in the vocational department of the Wisconsin School for Boys at Wales or in similar institutions.

Krejcie (continued)

Method Used--Review of training records of students.

Summary and Findings--Each boy was placed in two shop classes during his first committal. Auto mechanics and woodworking were ranked first and second. The most first admissions were 16 years of age. The average number of weeks spent in each shop class was just under eighteen.

Kurz, Jerry J., A Survey of Competencies Needed in Home Maintenance and Operation. Plan B, M.S., 1965, Stout State University, 26 pages: Adviser, Dr. Prichard.

Purpose of Study--To determine the frequency, extent, and importance of home maintenance jobs encountered by the average home owner. To determine what life situation problems the student was most apt to encounter outside of his regular employment, so as to include, reinforce, and supplement these skills in the industrial arts offerings of the John Edwards School.

Method Used--Review of literature.
Check list used in interview.

Summary and Findings--It is apparent that the average home owner is confronted today with a multitude of home maintenance problems which he hasn't the "know how" for doing. He considers every one of them worthy of more knowledge.

The industrial arts teacher in this area is in an admirable position of being able to teach students whose parents have a very favorable attitude towards the subject.

Landgraf, Gene M., A Proposed Course of Study for General Drawing in the West Allis Central High School. Plan B, M.S., 1955, Stout State University, 38 pages: Adviser, Dr. Anderson.

Purpose of Study--To develop a suggested course of study in general drawing which could be used for students on the secondary school level at the West Allis Central high school.

Method Used--The methods employed in carrying out this study were a review of the literature in the area of course construction and a review of existing courses of study in mechanical and general drawing.

Summary and Findings--Proposed Course Content

Unit I	Blueprint Reading
Unit II	Sketching
Unit III	Draftsman's Tools
Unit IV	Lettering
Unit V	Dimensioning
Unit VI	Woodwork Drawing
Unit VII	Sheetmetal Drawing
Unit VIII	Electrical Drawing

Landgraf (continued)

Unit IX Sectioning
Unit X Fasteners for Wood and Metal
Unit XI Pictorial Drawing
Unit XII Graphs, Charts, and Maps
Unit XIII Architectural Drawing
Unit XIV Pencil and Ink Tracings and Reproduction of Drawings

Leader, James, A Review of the Aspects of Consumer Auto Mechanics. Plan B, M.S., 1954, Stout State University, 43 pages: Adviser, Dr. Wigen.

Purpose of Study--To determine the objectives, methods, and course offerings in the field of consumer auto mechanics in relation to the needs of consumer knowledge. The study was concerned with the integration of this material into the Industrial Arts program of the Wisconsin secondary schools.

Method Used--This study was carried out by utilizing a review of literature dealing with auto mechanics, consumer education, and Industrial Arts philosophy.

Summary and Findings--The conclusions were:

1. A course in consumer auto mechanics is feasible from a teaching standpoint.
2. Vocational courses are too technical for the consumer to grasp.
3. The need for a course or courses in this field will increase as more automobiles are produced and sold.
4. Although some methods and materials used in other shops can be used in this course, new ones are very necessary.
5. Trade and Job Analysis is the best method for organizing the course content.

Leffler, Roger G., A Survey of Amateur Radio Stations in School And Colleges In The Tenth Area. Plan B, M.S., 1964, Stout State University, 49 pages: Adviser, Dr. Ruehl.

Purpose of Study--To develop a guide for schools and colleges which are contemplating the addition of an amateur radio station to their instructional programs.

Method Used--A survey of existing school and college stations. Review of literature.

Summary and Findings--Many schools and colleges have not included an amateur radio station in their electrical programs. Amateur radio is very important to the electricity-electronics program in terms of interest and motivation of the students. The electricity-electronics program appears to be the place for the inclusion of an amateur radio station. The addition of a station makes provisions for practical application of electronic theory, especially in the field of transmitters.

Leffler (continued)

There is a definite need for an amateur radio station in the electrical program as was indicated by seventy-five per cent of the respondents. Of the many transmitters and receivers being used by the stations of this study, no particular kind or piece of equipment appeared to be used more frequently than any other. The fact that only one station used a transmitter of local design and construction, indicated most stations were buying commercial equipment. The number of interested students is an important factor to consider when initiating a new station.

Loushin, Terrance F., A Resource Unit of Basic Electrical Instruments for Electricity and Electronics In Secondary School Shops. Plan B, M.S., 1964, Stout State University, 45 pages: Adviser, Dr. Ruehl.

Purpose of Study--To furnish the electricity teacher suggestions for materials, methods and procedures, activities, teaching aids, and evaluative procedures to be used in the development of a teaching unit on basic electrical instruments.

Method Used--Survey type of research using documentary frequency.

Summary and Findings--Resource Unit on Basic Electrical Instruments:
- Significance of the topic.
- Objectives and behavior changes.
- Outline of the topic.
- Skills and knowledge.
- Inventory of possible references, audio visual aids, suggested means of presentation, and student activities.
- Evaluation for resource unit.
- Selected film source.
- Selected bibliography for basic electrical instruments.

Luchisinger, Roland W., A Proposed Laminated Woodworking Project. Plan B, M.S., 1956, Stout State University, 9 pages: Adviser Dr. Anderson.

Purpose of Study--To develop a suitable laminated wood project which could be adapted to a woodworking program in a senior high school class.

Method Used-The problems encountered throughout this study were solved by experimentation in the high school shop. The study was conducted during the 1955-56 school year.

Summary and Findings--Lamination is the process of using layers of veneer glued to each other with the grain of the wood running with the grain of other pieces. The procedure involves laying out a drawing of the project. The construction of the forms to be used, the cutting of the veneer, gluing the forms, trimming of members after they come out of the forms, assembly, and finish constitute the processes of

Luchisinger (continued)

laminating the project herein studied.

From the concluded experimentation, it was found that large laminated projects in the high school shop are feasible.

Macemon, Warren E., A Proposed Resource Unit for Arc Welding for the Winona, Minnesota Senior High School. Plan B, M.S., 1962, Stout State University, 29 pages: Adviser, Mr. Klatt.

Purpose of Study--The investigation was directed toward the development of a proposed resource unit in electric arc welding.

Method Used--Review of related literature in the form of a normative survey method.

Summary and Findings--The heart of the study was the expanded sections of the resource unit on electric arc welding. In this, the importance of the topic was discussed, the objectives of electric arc welding and the desired pupil behavioral changes were formulated, the topic was classified into outline form, and a reservoir of information was listed for teacher aid which included textbooks, literature, and audio-visual references and suggestions of projects.

Magnuson, Thorwald A., Selection of Machine Shop Instructional Units For Full Time Beginning Vocational School Students. Plan B., M.S., 1955, Stout State University, 23 pages: Adviser, Dr. Anderson.

Purpose of Study--To identify a selected group of machine shop operations which could be performed by beginning full time students. The study incorporated these operations in planning projects of interest to the student.

Method Used--The study was conducted by using two techniques in collecting the data. A documentary study was made of books, periodicals. bulletins and state laws for the purpose of making an analysis of the operations which occured in machine shop. The operations were then identified as being appropriate to appear in a check list. The check list was administered to a selected group of teachers who engaged in instruction of the beginning full time vocational school student. The frequency of response toward inclusion and exclusion of an operation was tabulated. On the basis of selected criteria, operations were recommended to be included as instructional units for these students.

Summary and Findings--It is apparent that to fulfill the needs of the full-time vocational school students in beginning machine shop, a proper selection of instructional units is necessary. The fact that all but two of the ninety-five instructional units listed were checked for inclusion is an indication of their importance.

Maiers, Merlin J., A Proposed Informational Instructional Resource Unit For Transistorized Ignition Systems. Plan B, M.S., 1964, Stout State University, 42 pages: Adviser, Mr. Morical.

Purpose of Study--To select and list up-to-date sources of material pertinent to developing and conducting automotive ignition courses.

Method Used--Normative survey was used to develop this resource unit.

Summary and Findings--The body of the study was concerned with the information, components and funtions of a transistorized ignition system. Importance of the topic discussed and the reservoir of information was written to aid in planning a teaching unit on ignition systems.

Martens, Lyle C., A Study of Project Design and Construction in the Wisconsin Woodworking Shops. Plan B, M.S., 1962, Stout State University, 30 pages; Adviser, Dr. Christianson.

Purpose of Study--To contact the instructors of woodworking in the Wisconsin high schools. First, to ascertain what areas they are teaching; second, to determine if students design and build their own projects or have the opportunity to do so.

Method Used--Questionnaire method.
Review of literature.

Summary and Findings--

1. Cabinet making and finishing were the most popular woodworking areas taught.
2. As students progress in grade level, they were allowed more freedom in designing and building a project.
3. Wrought iron was slightly more popular than laminated members.
4. Spray equipment was used almost entirely by juniors and seniors.
5. Plastic and formica finishes were used by all grade levels.
6. Application of finishes on panels was not generally considered as valuable.
7. Almost all sources of project ideas were popular among teachers with the exception of the teachers own design.
8. The area in which the least reference was provided was upholstering.
9. Over one-half of the teachers thought that the school was the most important place for project display.
10. The most important single criteria for project selection was student ability.
11. Most of the teachers reporting provided reference material of several kinds in the shop areas taught.
12. Most teachers felt that the place of project display was less important than the fact that the project was displayed.

Matl, Glen J., The Woodworking Shop In Wisconsin Vocational Schools: Present Status and Future Outlook. Plan B, M.S., 1963, Stout State University, 25 pages: Adviser, Dr. Rudiger.

Matl (continued)

Purpose of Study--To gather information regarding present programs in the woodworking departments of Wisconsin Vocational and Adult Schools.
To help the course planning of woodworking instructors and administrators throughout the state of Wisconsin.

Method Used--Survey method with questionnaire.

Summary and Findings--Cabinet-making and carpentry are the most commonly offered vocational courses. Training needs are seen in a different light by the instructors and the administrators. Fourteen instructors foresaw a need for more woodworkers while eleven saw a decrease. Administrators believed there would be less need. Continuation students seem to be a strong part of the woodworking programs of many vocational schools. Most respondents expressed the opinion that a modernization of both physical plants and methods are needed. In a pre-apprenticeship program, skill and job knowledge courses were ranked high and science and labor-management relations ranked low.

Maves, Gordon R., Teaching the Graphic Arts Through Bookcrafts. Plan B, M.S., 1957, Stout State University, 45 pages: Adviser, Mr. Whydotski.

Purpose of Study--To determine whether the essential units of the graphic arts field can be taught by means of "bookcrafts" projects and related information.

Method Used--Basically, the major method used in this study was the normative survey. More specifically, the available literature was reviewed, teachable units in the graphic arts field were selected, and a frequency check was conducted against the "typical" bookcrafts projects.

Summary and Findings--This study revealed that a large number of the desired areas of work could be incorporated into projects of a bookcrafts course. Many limitations were found, however, which would influence the use of these processes. The limitations were found to be spatial, financial, instructional, and temporal.
Several excellent bookcrafts projects were found which seemed to indicate that some educators have the idea of a bookbinding core in mind. Along with these were projects for their usefulness and high motivational value.

McCarville, Charles, The Problem-Solving Approach to the Teaching of Industrial Education. Plan B, M.S., 1962, Stout State University, 34 pages: Adviser, Dr. Ruehl.

Purpose of Study--To discover what factors affect efficiency and effectiveness of problem solving in the industrial arts class.

Method Used--Review of related literature.

McCarville (continued)

Summary and Findings--

1. Active student participation in the learning process increases retention.
2. Problem recognition is an important skill to successful problem-solvers.
3. The value of formal analysis in some situations is questionable.
4. Group problem solving is more effective in terms of numbers of solutions than individual problem-solving.
5. Groups usually require a greater length of time to reach a specific solution to a problem than do individuals.
6. Fast learners are more effective problem-solvers in a permissive atmosphere.
7. Although there are indications that problem solving with a minimum of direction aids transfer and retention, no definite statement can be made regarding amount of direction required for maximum effectiveness.
8. Approaches to problem-solving vary between differing tasks.
9. Students who prefer the use of principles are better problem-solvers than those who rely on facts.

McFarlane, Morris D., A Proposed Industrial Arts Program For The Portage, Wisconsin, Junior and Senior High School. Plan B, M.S., 1957, Stout State University, 23 pages: Adviser, Dr. Anderson

Purpose of Study--To plan a modern industrial arts curriculum that is geared to the needs and interests of the community--one which will use all available facilities to capacity, and one which corresponds to present day philosophy and objectives in industrial arts.

Method Used--A questionnaire was sent to parents, students and employers in the Portage area to determine what the community desired in an industrial arts curriculum.

Using this survey as a basis for the program, literature was then reviewed to determine how to organize the information gathered into the best industrial arts program possible for the Portage junior and senior high school.

The amount of time to be spent in each field of instruction was determined by a statistical analysis of the units of instruction found in the survey report.

Summary and Findings--The study outlined objectives and course content for the Portage public schools industrial arts department. The program was developed, as near as possible, to meet the needs and interests of the community and present day trends in industrial arts.

McLeod, Malcolm J., A Proposed Curriculum for Marine Technology With Course Descriptions. Plan B, M.S., 1964, Stout State University, 29 pages: Adviser, Dr. Rudiger.

McLeod (continued)

Purpose of Study--

1. To determine the need for technicians in the marine industries and in marine research,
2. To determine what knowledges and skills are needed by a marine technician,
3. To construct a curriculum of subjects for training high school graduates in the knowledge and skills needed by the marine technician.

Method Used--Personal interview and observation of work.

Summary and Findings--The study revealed that the marine technology training should be pointed toward the marine science technician.

Suggested Curriculum by Quarters

First Quarter-
  Navigation and Seamanship I
  Internal Combustion Engines
  Algebra I
  Chemistry I
  Fishing Operations I

Second Quarter-
  Navigation and Seamanship II
  Physics I
  Trigonometry
  Marine Chemistry
  Communication Skill: English
  Fishing Operations II

Third Quarter-
  Navigation and Seamanship III
  Diesel Engines I
  Shipfitting
  Fishing Operations III
  Electricity
  Communication Skills: Technical Writing

Fourth Quarter-
  Marine Auxiliary Equipment
  Physics II
  Chemical Oceanography
  Fishing Operations IV
  Communication Skills: Speech

Fifth Quarter-
  Marine Refrigeration
  Marine Biology I
  Physical Oceanography
  Basic Electronics

Sixth Quarter-
  Marine Instrumentation
  Marine Biology II
  Geological Oceanography
  Seafood Processing
  Marine Science Problems

Mehring, Thomas F., Status of Graphic Arts Education in Southern California Secondary Schools: 1963-1964. Plan B, M.S., 1964, Stout State University, 41 pages: Adviser, Mr. Whydotski.

Purpose of Study--To:

1. Stimulate present instructors of graphic arts to bring their local situation closer to the average, as minimum for their course offerings,

Mehring (continued)

2. Provide a guide to be used in setting up new graphic arts programs in Southern California, and
3. Provide a guide for new instructors of graphic arts in the Southern California area.

Method Used--The questionnaire inquiry type of the normative survey method was the principle technique used in acquiring information.

Summary and Findings--No general assumption can be made from this study concerning the adequacy of present graphic arts programs in Southern California. However, the research recommended that a study be conducted to determine what a student should know about graphic arts upon graduating from high school and by comparing the present program with the preferred one, the adequacy of the present programs can be evaluated.

Melby, Larry D., A Proposed Plan for the Development of an Industrial Arts Program in San Juan Capistrano Junior High School. Plan B, M.S., 1964, Stout State University, 29 pages: Adviser, Mr. Flug.

Purpose of Study--To identify sound, logical bases for curriculum planning which would help to develop an industrial arts program appropriate to the needs of seventh and eighth grade boys in the San Juan Capistrano Elementary School.

Method Used--Review of literature.

Summary and Findings--As a result of this study it has become apparent that continual curriculum evaluation will be necessary.

Mero, Timothy J., An Introductory Resource Unit of the Related Technical Information Topics for the Gas Metal Arc Welding Process. Plan B, M.S., 1965, Stout State University, 61 pages: Adviser, Mr. Klatt.

Purpose of Study--To expound upon the knowledge of the Gas Metal Arc Welding process and to organize the content of the findings into a workable resource unit.

Method Used--The documentary method of research was used.

Summary and Findings--As advancements in the welding industry occur, educators must revise their curriculums to include these advancements. From the gas metal arc process as it is known today, we can expect new applications and perhaps even the development of totally new processes.

Merriman, Rex D., A Survey Of Competencies Desired For Admittance Into Post-High School Mechanical Design Technology. Plan B, M.S., 1965, Stout State University, 15 pages: Adviser, Dr. Rudiger.

Merriman (continued)

Purpose of Study--To determine which educational competencies are desired of students entering the post-high school Mechanical Design Technology programs as offered by the Wisconsin schools of Vocational, Technical and Adult Education.

Method Used--Survey with a check list.

Summary and Findings--Mechanical Design Technology programs of the State of Wisconsin are in their infancy. Schools are generally located in the greater metropolitan areas. There is a great deal of work to be done in the technical schools to bring them up to an economical, informative institution of higher learning.

Meyer, Stanley L., Suggested Content for Power Mechanics. Plan B, M.S., 1962, Stout State University, 48 pages: Adviser, Mr. Morical.

Purpose of Study--To formulate a suggested content for a course in power mechanics.

Method Used--This study was a normative survey type research by documentary frequency.

Summary and Findings--The course title "Power Mechancis" denotes our most rapidly emerging new instruction area. The higher skill level required for everyday living calls for a re-evaluation of the industrial arts curriculum. The modern methods of the atomic age have placed emphasis on power comprehension, mathematical applications, and an understanding of scientific principles which were not deemed necessary a decade ago. We cannot train students for survival in the atomic age by the craft methods of a generation ago. We must up-date the curriculum to bring it into line with the technological advances of the twentieth century. A dynamic course in power mechanics fulfills the needs of youth for a better understanding of power, industry and its contributions to life and to America.

Mihalko, John A., A Proposed Resource Unit in the Heli-Arc Welding of Aluminum for a Senior High School Arc Welding Course. Plan B, M.S., 1963, Stout State University, 56 pages: Adviser, Mr. Klatt.

Purpose of Study--To analyze, identify, select, and condense content materials pertaining to the history, basic principles, uses, and the future of the Heli-Arc process of welding aluminum.

Method Used--The normative survey was the primary method used to develop this resource unit. Some experimental research was also employed.

Summary and Findings--Heli-Arc welding has proven its value in welding aluminum products. Because of the educational philosophy in America of preparing the American youth for employment, a course in the heli-arc welding of aluminum is entirely feasible. This study provides two instructional units which should be included in the training program for the welder of aluminum products.

Miller, Neil F., Status of Industrial Arts in the One-Man General Comprehensive Shop of Wisconsin's Public Secondary Schools. Plan B, M.S., 1963, Stout State University, 64 pages: Adviser, Dr. Rudiger.

Purpose of Study--To promote thinking on the part of the persons interested in establishment, organization, and management of the general shop. To ascertain the present status of the one-man general comprehensive shop in the public secondary schools of Wisconsin.

Method Used--Questionnaire and review of literature were the chief sources of information used in this paper.

Summary and Findings--

1. A majority of school shop class periods are of the same time length as regular academic periods.
2. The term manual training is non-existent.
3. When industrial arts is required it is most frequently found at the seventh and eighth grade levels.
4. Small communities are demonstrating an interest in having adult industrial arts classes.
5. Types of in-service training are widely diversified and varied.
6. Industrial arts teachers, as a whole, have not kept abreast with the changing emphasis in industrial areas.
7. Industrial arts teachers tend to be younger than their colleagues in other subject areas in Wisconsin's smaller communities.
8. The college preparation of industrial arts teachers ranks high when compared with other subject area teachers.
9. In small high schools, it is common for industrial arts teachers to teach other subjects in addition to industrial arts.
10. In small high schools, industrial arts teachers are generally assigned some supervisory function and are usually given a staff committee assignment.
11. Industrial arts teachers receive home room and study hall supervision assignments with the same frequency as other subject area teachers.
12. Generally, industrial arts teachers are expected to do their own shop maintenance.
13. Other subject area teachers and administrators regard industrial arts as being an important segment of the school program.
14. A small minority of industrial arts teachers are keeping their ideas and concepts current with modern industrial technology by offering course work in electricity and power mechanics.
15. Less than one half of the industrial arts teachers are attempting to correlate industrial arts with other subjects.

Moroni, Charles R., A Resource Unit in the Use of Iron Powder Electrodes in a Senior High School Arc Welding Course. Plan B, M.S., 1960, Stout State University, 20 pages: Adviser, Mr. Klatt.

Purpose of Study--To identify, select and determine what material to include in a resource unit for the use of iron powder electrodes in a senior high school welding course. The secondary purpose was to develop guides for teachers in the field who were interested in a selected source of information for an arc welding course.

Moroni (continued)

Method Used--The normative survey was the method used to develop the resource unit.

Summary and Findings--Welding is a very dynamic field; many new products and processes are constantly being developed. This resource unit is an attempt to keep abreast of the new products and processes being introduced in the welding field.

Niemiste, Robert N., A Suggested Guide for the Selection and Placement of Industrial Arts Equipment In the New London-Spicer Community High School. Plan B, M.S., 1961, Stout State University, 35 pages: Adviser, Dr. Christianson.

Purpose of Study--To recommend a guide for the equipment needed for the industrial arts department and placement of this equipment within the shops.

Method Used--The normative survey was used.

Summary and Findings--

1. The selection of equipment and the placement of equipment in the industrial arts rooms are important factors and they should receive careful consideration before the purchase of equipment.
2. The areas of the industrial arts department should meet the needs of the student.
3. The tools and equipment selected are needed in the areas of the department to improve pupil efficiency in learning and the teacher effectiveness in teaching.

Nolan, Sister M. Marjory, A Dietary Study Of The Chippewa Indian Youth Of St. Mary's Mission, Odanah, Wisconsin. Plan B, M.S., 1963, Stout State University, 86 pages: Adviser, Miss Meiller.

Purpose of Study--

1. To discover what foods are served in the ordinary day-to-day fare of the school age children of the Bad River Chippewa Indians;
2. To determine with some degree of accuracy the quality and quantity of the nutrients comprising the daily diet of this particular group;
3. To make available the results of this survey to those who teach nutrition in both St. Mary's Indian Grade School, Odanah, Wisconsin and in the De Padua High School, Ashland, Wisconsin.

Method Used--The method of research used in the preparation of this paper was the normative survey.

Summary and Findings--In the process of tabulating, analyzing, and evaluating these dietary records the following conclusions were drawn:

1. The consumption of milk, green and yellow fruits and vegetables rich in vitamin A, and the fruits rich in vitamin C were found to be less than the recommended amount for the majority of the subjects.

Nolan (continued)

2. Practically all the students need some direction and guidance in nutrition education and proper instruction in making and evaluating correct choices of foods from the lunchroom, the home, and the snack bar.
3. That one of the most valuable instructions we can give our youth is to help them develop habits which contribute to their best possible health.
4. That the majority of the students had the recommended minimum number of servings for the three-day period in three food groups.
5. The universal Indian practice of serving mixed foods presented many problems in correct evaluation of the diet, and these circumstances must be taken into consideration in interpreting the data of the survey.

Nysather, Harry, A Resource Unit In Numerical Control. Plan B, M.S., 1961, Stout State University, 16 pages: Adviser, Dr. Wiehe.

Purpose of Study--To collect data on numerical control and organize it into a resource unit.

Method Used--Normative survey through a review of literature.

Summary and Findings--Significance of numerical control and its possible impact on our methods of production were brought out along with a brief description of the basic principles of this new concept. Objectives and desired student behavioral changes were formulated, a history of numerical control was given, and three types of control were discussed. The advantages of numerical control were discussed, and pertinent articles on the subject were listed. Suggested activities were given with the hope that they will be used to further acquaint the apprentice with numerical control.

Oerlline, William Jay, A Survey of Interests And Needs Of Adults For General Education In Rapid City, South Dakota. Plan B, M.S., 1963, Stout State University, 23 pages: Adviser, Dr. Rudiger.

Purpose of Study--To ascertain if there is enough interest and need in the Rapid City area to support an education (adult) program of elementary and secondary education level.

Method Used--Review of latest census records plus a survey of the community.

Summary and Findings--Many showed interest in attending further adult evening courses other than academic. Those areas were commercial, cultural, skilled, recreational and home economics. The greatest interest was shown in commercial and skilled courses. The study indicated that the people were concerned with increasing their economic abilities.

Olsen, Conrad R., The Effectiveness of a Seventh Grade General Shop Followed by Student Selection of Industrial Arts Units in the Eighth and Ninth Grades. Plan B, M.S., 1961, Stout State University, 15 pages: Adviser, Dr. Rudiger.

Purpose of Study--To determine if the seventh grade general shop was serving the exploratory purpose for which it was designed.

Method Used--Questionnaire.

Summary and Findings--

1. The imbalance in the selection of units could have been caused since some areas might have been stressed more than others in the seventh grade exploratory course.
2. It is possible that the coverage of an area was not thorough in the seventh grade courses.
3. The students might not have realized why they took the exploratory course; how they were to discover areas of curiousity and interest.
4. Eighth grade students probably are too immature to be able to make intelligent choices of units.
5. Many new students had little on which to base their choices of units and may have had a balancing effect on the selection of various units.
6. Some ninth grade students might have satisfied a desire for a certain unit in the eighth grade; therefore, they did not desire to repeat it, and this caused the balance of unit selection to be better in the ninth grade.
7. The scheduling of the boys was not effective since a large percentage of them were not scheduled to take their choices.
8. It appears that an effective job was done in the exploratory course of familiarizing the students with various types of work and projects made in the different units.
9. Since parents had little influence over the students' choice of units, it is possible that the department did not inform them of the opportunities found in industrial arts.
10. It is evident that the department is not doing as effective a job in promoting the avocational aspects of industrial arts.

Olsen, Marie L., Proposed Curriculum For Executive Housekeepers. Plan B, M.S., 1965, Stout State University, 19 pages: Adviser, Dr. Rudiger.

Purpose of Study--To indicate the nature and scope of duties of the executive housekeeper.

To ascertain the trends of employment in executive housekeeping.

To determine the kind and degree of education presently available for executive housekeepers.

To explore the possibility of developing a proposed curriculum at Stout State University for training future executive housekeepers.

Method Used--Review of literature.

Letters of inquiry.

Olsen (continued)

Summary and Findings--The executive housekeeper in an executive and administrative capacity is serving millions of persons each day in American service industries. Their activities are virtually unknown to the public which they serve. The responsibilities, prestige, and salary of the professional housekeeper have steadily paralleled the growth of their national organization. Only four universities in the nation are providing the necessary education for people entering this field. Highly trained people in the professional housekeeping field can mean substantial savings of money for both private and public institutions.

Ornum, William Van, An Analysis of Methods of Building Construction. Plan B, M.S., 1963, Stout State University, 58 pages: Adviser, Dr. Swanson.

Purpose of Study--To investigate construction methods and materials as the bases for a course in building construction.

Method Used--Review of literature.

Summary and Findings--

1. Methods and materials of building construction are rapidly changing due to technological advance.
2. Buildings today are designed better from the aesthetic point of view as well as being functional.
3. Probably the most outstanding trend noted in the literature is the swing toward factory fabrication and the use of component parts.
4. All the materials which were discussed in this study are used in prefabrication either by themselves or in combination with other materials.
5. The work is becoming more specialized, competition is becoming keener, and prices are being kept in line to meet the needs of buyers.
6. The day is already approaching when buildings will be completely equipped with all wiring, plumbing, and appliances at the factory.

Owens, Clyde, A Proposed Resource Unit for Use in Presenting an Instructional Unit in Heli-Arc Welding of Wrought and Cast Aluminum for Advanced Welding Students on a Senior High School Level. Plan B, M.S., 1963, Stout State University, 59 pages: Adviser, Mr. Klatt.

Purpose of Study--To construct a resource unit for use in presenting instructional units on Heli-Arc welding on wrought and cast aluminum for advanced welding students on a senior high school level.

Method Used--Documentary research.
Experimentation.

Owens (continued)

Summary and Findings--The instructional units which are compiled in the paper should aid the industrial arts instructor in preparing courses of study in Heli-Arc. All welding procedures were obtained through experimentation, and all the results were recorded as they appeared. Industry is making increasingly greater strides in developing new techniques and equipment; therefore, if research and study are not continued, the welder's methods will rapidly become obsolete.

Paulson, Paul M., A Resource Unit for Machine Shop Covering the Shaper, Planer, and Metal Cutting Saw. Plan B, M.S., 1961, Stout State University, 48 pages: Adviser, Dr. Wiehe.

Purpose of Study--To identify and select information which should be included in machine shop work.

Method Used--The normative-survey method of research was employed for this portion of the research. Manufacturers were contacted for up-to-date educational materials.

Summary and Findings--The findings of this study developed the following conclusions:

1. The resource unit covering the shaper, planer and metal cutting saw was not complete due to the enormous task of obtaining all the up-to-date reference material in the time available.
2. There was a definite shortage of new metalworking books due to the rapid accelerating era of progress experienced in the metal trades.

Pedro, David, Principles of Design and the Design Process for the Selection and Development of General Shop Projects. Plan B, M.S., 1959, Stout State University, 25 pages: Adviser, Dr. Wigen.

Purpose of Study--To identify design principles and a design process to be used for selecting and developing projects in the general shop.

Method Used--The documentary method of research was employed for gathering data.

Summary and Findings--Although there were found to be no hard and fast rules for the teaching of design, there were established principles that were used as guides in the teaching of design. The design process used by industry was found to be the result of research, experience, and hard work and was adaptable to project design in the general shop. Project selection and development was found to be a matter requiring fine judgement. All projects used for general shop activities should evolve from good design principles.

Pepper, Claude S., A Teaching Learning Unit of the Transportation Area of American Industry by Using the Conceptual Method. Plan B, M.S., 1964, Stout State University, 41 pages: Adviser, Dr. Face.

Pepper (continued)

Purpose of Study--To determine the basic concepts and the teachable content for the introduction to the transportation areas of the program.

Method Used--Review of literature.

Summary and Findings--All forms of transportation have the following commonalities:

1. All forms of transportation must start from a source or origination point.
2. Traffic is the actual movement of materials or people and is defined as the means or method of transportation. Nature provides a natural breakdown of this area into traffic by air, water, and land.
3. The area of receiving is the reverse of shipping and includes operations such as unloading, unpacking and checking of materials. The last step is the destination which is defined as the predetermined final point.

Perrigoue, Francis J., The Influence of Eighth Grade General Shop on the Selection of Industrial Arts Courses in the Ninth and Tenth Grades at the Green Bay High Schools. Plan B, M.S., 1965, Stout State University, 15 pages: Adviser, Dr. Wiehe.

Purpose of Study--To determine the influence of the eighth grade general shop on future industrial arts choices.

Method Used--Student questionnaire.

Summary and Findings--

1. There is a possibility that some areas in the eighth grade courses were over-emphasized by the industrial arts teachers.
2. The new ninth grade students at Washington who had no previous industrial arts experience selected the same pattern of industrial arts courses as those who had taken industrial arts in the eighth grade.
3. It seems that more participation by the parents and guidance department at the tenth grade level contributed to a better distribution of students throughout the industrial arts courses.
4. It is possible that the tenth grade expanded curriculum in industrial arts allowed the students a greater course choice and caused a more even distribution of student enrollment.
5. Indications are that the avocational aspect of industrial arts is being over-looked by the industrial arts teachers.

Peterson, Elmer P., A Tentative Course of Study in Industrial Arts for the Junior High Schools at Aurora, Illinois. Plan B, M.S., 1962, Stout State University, 46 pages: Adviser, Dr. Christianson.

Peterson (continued)

Purpose of Study--To organize and construct a tentative course of study to be used by teachers of Industrial Arts in Aurora, Illinois, and by others who may wish to avail themselves of the information and procedure.

Method Used--Review of selected literature.

Summary and Findings--

1. The type or characteristic qualities of the local community is very important in the construction of a course of study.
2. In order to have a course of study that may be of value, the objectives, content, methods of instruction, and evaluation are a part of, and not apart from each other.
3. In an industrial arts program, the organization is very important in any shop.
4. The selection and making of projects should be decisive in motivating students to their full capacities.

Peterson, Jann J., Coordinating the Summer Neighborhood Job Corps With the Use of the High School Industrial Arts Facilities. Plan B, M.S., 1965, Stout State University, 29 pages: Adviser, Dr. Prichard.

Purpose of Study--To investigate the possibility of using local school industrial arts facilities in development with a neighborhood job corps as established by the Economic Opportunity Act of 1964 and state operated programs.

Method Used--Personal interviews.
Review of related literature.

Summary and Findings--The Neighborhood Youth Corps must coordinate with the local school facilities to run an economical program that will last and benefit many of our future youth who will also be in need of work. Being well planned, using trained staff, being well-publicized and respected by the community, youth, and public as a whole, the Neighborhood Youth Corps can be the product of a search long sought after for solving the youth employment in America.

Pinkepank, Charles J., A Welding Occupational Survey of Wausau Area Industries. Plan B, M.S., 1964, Stout State University, 25 pages: Adviser, Dr. Rudiger.

Purpose of Study--To ascertain the need for training welding students.
To ascertain the type of training employers desired students to receive.
To obtain specific information pertaining to welding from each establishment in the Wausau area.
To obtain information pertaining to future trends in welding in the Wausau area.

Pinkepank (continued)

Method Used--Interview schedule form.

Summary and Findings--

1. Employers desired vocational training of welders.
2. Electric arc welding was done extensively.
3. Welders should be able to set up and adjust machines.
4. Production welding was mostly done in flat position.
5. Excess of fifty per cent of the welding firms interviewed will be increasing welding employees considerably in the next five years.

Pogorelc, John, The Development of a Resource Unit in General Metals for Watertown Public High School. Plan B, M.S., 1964, Stout State University, 42 pages: Adviser, Mr. Klatt.

Purpose of Study--To develop a resource unit which applied to general metals for Watertown High School.

Method Used--Review of related literature.

Summary and Findings--In the general metals shop separate unit courses must be developed, one for each area. The units may be organized separately but taught at the same time. Relatively simple projects may be developed in each area to acquaint the student with the tools and procedures for each area. The course should be introductory in nature to the metals field.

Polzin, Darryl L., The Development of a Unit in Destructive Testing. Plan B, M.S., 1965, Stout State University, 32 pages: Adviser, Dr. Prichard.

Purpose of Study--To give the students an understanding and live experience in testing materials and fasteners. To give the students experience in problem solving, report writing, and oral presentations.

Method Used--Review of literature.
Testing of unit through application to class.

Summary and Findings--Destructive testing applies very well to industrial arts and can easily be handled by high school students. It was felt that students learned considerably more about the strengths of industrial materials than they knew before they started. It was also noted that students gained more knowledge about the "whys" of material strength through such experiences.

A unit on destructive testing should be taught at the high school level in the industrial arts shop, preferably in a general shop because of facilities.

Every student should have a thorough knowledge of destructive testing as it applies directly to industry and the process of manufacturing and testing a new product.

Ponschok, Fred E., A Survey of Educational Needs for High School Students Entering a Vocational Program in Welding. Plan B, M.S., 1964, Stout State University, 33 pages: Adviser, Dr. Rudiger.

Purpose of Study--To ascertain the educational needs of students who anticipate entering a vocational educational program in welding. To provide content for a unit course in welding. Improve communication between industrial arts instructors and the guidance department. To give information for the class scheduling guide for students. Direct sources of information for interested students.

Method Used--Questionnaire sent to 18 vocational-technical schools in the state. Survey conducted by Industrial Arts Department of Shawano High School and Wisconsin State Board of Vocational and Adult Education.

Summary and Findings--High school diploma is essential to entering a vocational program in welding. Both academic and industrial arts are important for preparation for the vocational welding program. Teaching content in the course varies with degree of importance. There is a need to coordinate the program with principal, guidance personnel, and industrial arts teachers in counseling students who wish to enter the welding program.

Pontar, Antoinette, Determination of the Needs of Students and Graduates of Saint Mary's Academy With Implications for the Clothing Curriculum. Plan B, M.S., 1965, Stout State University, 59 pages: Adviser, Dr. Barra.

Purpose of Study--The problem was:

1. To determine the needs of the students and graduates of St. Mary's Academy in the field of clothing and textiles.
2. To determine the value of possible curriculum content and
3. To get suggestions for possible revisions in the curriculum offered.

Method Used--A review of the literature upheld the original premise that the course of study in a high school must be developed to meet future as well as present needs of the students.

A questionnaire asked for personal data which was intended for use in evaluating results.

Summary and Findings--The recommendations made were based on student and alumni values. Further work in terms of parent and teacher evaluations may possibly cast light on the matter of revisions. There appeared to be value in seeking the assistance of others in planning a course of study which would meet both the present and future needs of the student.

Rathert, Leroy H., Industrial Arts Areas for Janesville Junior High School. Plan B, M.S., 1954, Stout State University, 66 pages: Adviser, Dr. Anderson.

Rathert (continued)

Purpose of Study--To ascertain which of the industrial arts areas, now included in the curriculum, showed some relation to former students' vocations, avocations, and military occupations. Further, the writer wished to ascertain which industrial areas not in the curriculum should be offered.

Method Used--The methods used in collecting data consisted of a normative survey and a survey of the literature available in the field.

Summary and Findings--The data presented a significant relationship which showed an influence upon the selection of one's occupation, military activities, and avocational pursuits.

Philosophy objectives of junior high school industrial arts were discussed in Chapter III. The growth characteristics and competencies were also presented.

Industrial arts at the junior high school level should be exploratory in nature and provide some opportunities to make tentative choices. They should develop physical coordination and industrial intelligence.

The areas proposed for the curriculum had their selection based upon several criteria. The criteria were: (1) philosophy and objectives of industrial arts, (2) the survey data, and (3) the survey of literature. The areas proposed were (1) woodworking, (2) graphic arts, (3) metals, (4) electricity and radio, (5) arts and crafts, and (6) home mechanics.

Reuter, Luther D., A Proposed Resource Unit for Tungsten Inert Gas Welding. Plan B, M.S., 1964, Stout State University: Adviser, Mr. Klatt.

Purpose of Study--The purposes were:

1. to determine what information to include in a resource unit on tungsten inert gas welding,
2. to serve as a guide and a source of information so that material taught on tungsten inert gas will be up-to-date,
3. to serve as a guide and a source of reference to other instructors teaching a similiar unit, and
4. to use this resource unit to help determine the equipment necessary to successfully teach a unit on this area of welding.

Method Used--Review of literature.

Summary and Findings--This resource unit contains sufficient information to aid considerably in setting up and teaching a unit on tungsten inert gas welding on the high school or post high school level. The information making up this unit was developed from the most recent literature presently available; however, continual additions and possible revisions will have to be made to keep it up to date and useful.

Richter, Rudolph, A Proposed Reorganization of Graphic Arts in the Appleton Junior High School. Plan B, M.S., 1963, Stout State University, 45 pages: Adviser, Mr. Whydotski.

Richter (continued)

Purpose of Study--The purposes were:

1. To determine the ideal theoretical situation which would give each student an opportunity to experience all phases of Graphic Arts, and to fulfill the school Graphic Arts philosophy.
2. To determine what should be practical to teach if you had an ideal shop situation.
3. To obtain occupational information to help in the guidance of students in both the local and national field of Graphic Arts, and
4. To determine what was practical to teach in the instructors' own individual situation.

Method Used--Survey of literature.
Questionnaire.
Conferences with people in the Graphic Arts field.

Summary and Findings--

1. Four possible areas that may be taught in Graphic Arts are printing, photography, paper making, and book binding.
2. In the survey of Graphic arts in the Appleton Senior High School, it was found that 49.4% of the 1962 graduation class enrolled in college classes. Information as to what percentage of these students studied Graphic Arts was not available.
3. The school has a very definite responsibility to the non-college bound student, to see that he too receives the finest education and guidance it is possible for the school system to provide.

Roberts, Richard W., An Occupational Survey of West Bend, Wisconsin. Plan B, M.S., 1962, Stout State University, 25 pages: Adviser, Dr. Rudiger.

Purpose of Study--To provide information concerning the occupations in the West Bend area for establishing the vocational and adult program. To furnish data to assist the guidance program in the West Bend schools. To ascertain the occupational trends and opportunities in the West Bend areas.

Method Used--Personal interviews with an interview schedule.

Summary and Findings--The working force in West Bend is relatively young. The largest groups of workers are in the skilled and semi-skilled categories. Manufacturing and processing divisions employ over three-fourths of the working force. Opportunities for advancement are relatively good. Minimum of a high school education is needed in most occupations. Area industries are growing. Future needs for workers in the occupations area are growing. Courses in welding and machine shop are advocated by many employers. A need for training in the clerical field was indicated.

Rocklewitz, Richard, An Investigation of Reproduction Methods Most Commonly Used in the Field of Industrial Graphics (Drafting) With Special Emphasis Directed to Development of a Unit of Study for Instructional Purposes at the Secondary School Level. Plan B, M.S., 1966, Stout State University, 32 pages: Adviser, Mr. Erickson.

Purpose of Study--The purpose of this study was to provide instructional content which could be used by industrial graphics instructors. This material should supplement present programs and give a more realistic view of industry.

Method Used--To obtain the data for this resource unit, literature and materials were obtained from the leading manufacturers of the process involved and reviewed recent periodicals in the reproduction field.

Summary and Findings--A resource unit on reproduction methods provides an opportunity for an instructor to present material to his students that is not found in most textbooks. This material plus the activities illustrate a realistic view of how industry reproduces drawings. This unit provides suggestions for teaching industrial graphics, but because this is a rapidly changing field it must be up-dated every few years.

Ruetten, Bernard P., Planning and Promoting of the South Milwaukee School of Vocational, Technical, and Adult Education. Plan B, M.S., 1963, Stout State University, 17 pages: Adviser, Dr. Rudiger.

Purpose of Study--To ascertain the best methods of advertising the program to the people of the South Milwaukee area. To secure information from the students that will help the administration formulate plans to adjust and improve its program offerings.

Method Used--Questionnaire.

Summary and Findings--Main reasons for attending school were to obtain education for a different job, cultural self-improvement, a hobby, and to develop abilities for their present occupation. School was meeting the educational needs of the students and was providing good instruction. Little interest was shown in summer school attendance.

Sand, James O., A Survey of Selected Industries in the Fox Valley Area to Determine Criteria for Teaching Electricity-Electronics at Appleton Senior High School. Plan B, M.S., 1965, Stout State University, 34 pages: Adviser, Dr. Ruehl.

Purpose of Study--To determine the teaching units of electricity-electronics which would be most beneficial to students seeking work in some electrical field.

Method Used--Questionnaire was sent to selected industries.

Summary and Findings--The survey showed need to include a unit on electric motors and to delimit the unit on house wiring. It also pointed out the need to relate the teaching areas to what is happening in industry.

Schleg, Frederick P., The Selection and Classification of Industrial Instructional Materials for Use in Secondary School Foundry Courses. Plan B, M.S., 1962, Stout State University, 47 pages: Adviser, Mr. Kufhal.

Purpose of Study--To secure various types of industrial instructional materials that will aid in the improvement of instruction of foundry courses.

Method Used--The normative survey type of research was used.

Summary and Findings--The use of industrial instructional material in the instruction of industrial arts is supported by leaders in the field of industrial arts. These leaders indicated that these materials were valuable for use by the instructor of industrial arts in the improvement of his instruction. Industry is an excellent source from which these materials may be obtained free of charge or at a low cost, for use in the up-dating of instruction in terms of modern processes and technical advances made by industry. These industrial instructional materials may be of greater use to the teacher as a part of his curriculum content if classified and arranged in tabular form according to meaningful content of instruction. In order to keep this tabular classification up-to-date, it must be constantly revised as new materials become available.

Schlice, Willard J., Copy Techniques, Equipment and Supplies Necessary to Incorporate Instruction in Photo-Lithography to the Existing Graphic Arts Department at P. J. Jacobs High School, Stevens Point, Wisconsin. Plan B, M.S., 1962, Stout State University, 36 pages: Adviser, Mr. Whydotski.

Purpose of Study--To investigate the various copy techniques for photo-lithography to learn what they are and how to do them, the equipment needed, and its cost.

Method Used--Survey of literature.
Experimentation.

Summary and Findings--The role played by photo-lithography in the printing industry today precludes any other conclusion than that a course in photo-lithography should be added to the graphic arts department. The amount of equipment already available would enable the course to be started with a minimum out-lay of funds in comparison with what it would cost if it were not already there. The Board of Education will be the determining body as to how complete the course will be in the beginning. This will be determined by the amount of funds that they will be willing to appropriate to begin the course.

Schmeling, Wallace R., The Selection and Classification of Industrial Instructional Materials for Use in Secondary School Metal Courses. Plan B, M.S., 1959, Stout State University, 37 pages: Adviser, Dr. Wigen.

Schmeling (continued)

Purpose of Study--To secure various types of industrial instructional materials to aid in the improvement of instruction in secondary school general metal programs.

Method Used--The normative survey type of research.

Summary and Findings--

1. Industrial Arts leaders indicated that industrial instructional materials were valuable for use by the industrial arts teachers in the improvement of their instruction.
2. Industry is an excellent source for instructional aids. Industrial firms have a wealth of material, a large portion of which is available free of charge or at a very low cost. Such materials cover a variety of subjects and are concerned with the most modern practices.
3. Industrial instructional materials may be of greater use to the teacher as a part of his curriculum content if it is classified and arranged in tabular form according to meaningful content of instruction.
4. The tabular classification as presented in this study should be constantly revised as new materials become available.

Schneeberg, Melvin H., Mathematics and Industrial Graphics. Plan B, M.S., 1962, Stout State University, 61 pages: Adviser, Dr. Anderson.

Purpose of Study--To compile data on mathematical operations so that this data could be used:

1. to improve instruction,
2. to aid in developing courses,
3. to aid the development of courses in related mathematics for vocational schools, and
4. to evaluate the mathematical content of established drafting courses.

Method Used--The analysis containing the mathematical operations for this study was compiled from selected problems that were presented in books which represented the fields of architectural, machine, mechanical, structural, sheet metal, and topographical drafting.

Summary and Findings--This study indicated that draftsmen need mathematical knowledge to successfully perform the required manipulative work in the different drafting fields. It was also evident that the different drafting fields required mathematics in varying degrees. Architectural, sheet metal, and mechanical drafting required fewer mathematical operations than machine, structural, and topographical drafting. The over-all analysis of industrial graphics indicated that if a course in related mathematics were established for drafting, this course would have to include many of the operations of arithemetic, algebra, and trigonometry.

Schneider, Peter, A Resource Unit for Welding 18-8 Type 304 Stainless Steel in High Schools. Plan B, M.S., 1960, Stout State University, 29 pages: Adviser, Mr. Klatt.

Purpose of Study--To compile information applicable to welding stainless steel with the main emphasis being on 18-8 type 304 stainless steel used in every day life.

Method Used--The documentary survey type of research was used in this study. The pertinent information derived by the documentary survey was compiled and organized as a resource unit.

Summary and Findings--As a result of this study, it was concluded that the type of stainless steel with which this study was concerned (18-8# type 304) is one of the most used stainless steels. It was further concluded that the three welding processes described in the study were practical for high school situations.

It was further concluded that a tremendous amount of free material, which would aid the teacher in writing a resource unit, may be obtained from welding manufacturers.

Schultz, James Vincent, A Proposed Resource Unit in Topography. Plan B, M.S., 1963, Stout State University, 37 pages: Adviser, Dr. Anderson.

Purpose of Study--To offer a supply of information using the typical resource unit method of supplying teachers and curriculum planning committees with information for origination or enhancing a program of instruction in the area of topography.

Method Used--Review of literature. The use of the method of activity analysis for the preparation of the instructional units.

Summary and Findings--The information and material presented in this study offered a substantial foundation from which the instructor may construct a course outline in topography. Development of lesson plans and learning unit activities provided meaningful and worthwhile learning experiences on the secondary school level.

Severson, Morris A., A Study of Business Education: Past, Present, Future. Plan B, M.S., 1965, Stout State University, 41 pages: Advisor Dr. Rudiger.

Purpose of Study--To investigate the business education field in order to gain a better understanding of its background, purposes and trends.

Method Used--Review of literature.

Summary and Findings--Business education is the fastest growing segment of the American school curriculum.

Slinger, Philip J., An Analysis of School Dropouts Committed to the Wisconsin State Reformatory. Plan B, M.S., 1964, Stout State University, 49 pages: Adviser, Dr. Courtney.

Purpose of Study--To determine some characteristics of school dropouts committed to the Wisconsin State Reformatory.

Method Used--Review of literature. Questionnaire.

Summary and Findings--

1. One of the main reasons that the inmates indicated that they left school was that they could not see the relationship between the subjects they were taking and their future work.

2. All inmates should be encouraged to participate in the school program. The average grade achievement of the inmates was seven years.

3. The reformatory should concentrate on developing a sense of responsibility and task consistency, or sticking to a difficult assignment, whether it is a job or school assignment, for the people committed to its care.

4. There should be an orientation class providing the inmate with instructions on facets of daily living on the "outside".

Smith, Clinton L., A Proposed Program for Industrial Arts at Centerville High School, Centerville, Iowa. Plan B, M.S., 1964, Stout State University, 50 pages: Advisor, Dr. Prichard.

Purpose of Study--To present a reference for the Centerville Board of Education and the administration to use in planning for the future of the industrial arts program for the high school.

Method Used--Survey of literature. Labor survey report.

Summary and Findings--The success of the Centerville High School industrial arts philosophy has failed to materialize due to the restricted program of drafting and woodworking.

The current industrial arts curriculum at Centerville High School is inadequate in breadth and depth compared to a modern industrial arts curriculum.

The present industrial arts program at Centerville High School is too narrow in scope to meet the needs of the students.

Steinhilber, Howard P., Suggested Criteria for Developing Pre-Vocational Trade Programs at the Wisconsin School for Boys. Plan B, M.S., 1965, Stout State University, 26 pages: Adviser, Dr. Rudiger.

Purpose of Study--To set up criteria for incorporating, changing, and/or developing new courses into a total program that will be beneficial to the student while at the institution and after leaving the institution.

Steinhilber (continued)

Method Used--Review of related literature.

Summary and Findings--A large percentage of the boys are "slow-learners" and are generally "low performing" students. A pre-vocational trade program would serve those students who, upon being released from the institution, do not plan on returning to high school. Vocational guidance is a necessary facet of the program. The school buildings at the Wisconsin School for Boys are reasonably well equipped to carry out the present program.

Steinke, Laven E., The Prefabricated House. Plan B, M.S., 1965, Stout State University, 20 pages: Advisor, Mr. Prichard.

Purpose of Study--To determine present trends in the building of prefabricated houses, to determine the advantages there are to buyer and builder, and to provide sources of information for the person interested in incorporating this into the curriculum of a building construction course.

Method Used--Review of literature.

Summary and Findings--If people were not so concerned about having their houses built like conventional homes or with conventional materials, and if codes were based on performance instead of specifications, manufacturers could, through research, build homes with better design and greater quality that would fit with our twentieth century ideas.

Stockey, Norman, A Suggested List of Problems and Activities for the Foundry Block in the General Metals Area in Industrial Arts. Plan B, M.S., 1953, Stout State University, 22 pages: Advisor, Dr. Wigen.

Purpose of Study--To plan a problem and activity method in instruction in order to teach the foundry block in the general metals area in the industrial arts program on a life situation basis.

Method Used--The procedure used in securing information for this study was the normative survey (documentary frequency) method.

Summary and Findings--In the review of literature for this study, it was found that the problem and activity method of teaching is a fairly new development and has not come into its own yet. There are many problems and activities that may be used in teaching foundry on a life-situation basis. There are many activities that may be used with each problem. This will allow for a more flexible and varied experience in teaching the foundry block.

Stoddard, Donald E., A Proposed Industrial Arts Curriculum for Lodi Senior High School. Plan B, M.S., 1961, Stout State University, 25 pages: Advisor, Dr. Wigen.

Stoddard (continued)

Purpose of Study--To determine present trends in industrial arts curriculums. On the basis of the investigation the author proposed an industrial arts program for Lodi Senior High School.

Method Used--The method employed was the normative survey research by use of documentary frequency.

Summary and Findings--As a result of this study it appeared that the following conclusions may be justified:

1. Industrial arts education is needed by everyone.
2. Industrial arts education should provide exploratory work in as many industrial activities as possible.
3. Industrial arts education should be prevocational in nature.
4. Industrial arts education should endeavor to develop consumer knowledge.
5. Industrial arts education should strive to develop aesthetic values in youth.

Industrial arts education should develop in the pupil the ability to analyze and solve problems as well as to develop motor skills. This should be done in conjunction with the preceeding five statements.

Stolp, George, Proposed Plan for a Resource Unit in General Electricity for Industrial Arts Teachers in Secondary Schools of Wisconsin. Plan B, M.S., 1955, Stout State University, 30 pages: Adviser, Dr. Wigen.

Purpose of Study--To encourage the publication of a resource unit on electricity by preparing a skeleton resource unit on electricity which can be presented to the Industrial Arts Committee for their evaluation and consideration.

Method Used--A review of the literature published on resource units was used to define and explain what is meant by a resource unit. This was followed by a frequency check of published materials on electricity to determine how various qualified people divided the field of electricity. With statistical treatment of the information found followed by discussion with qualified members of the Electrical Departmemt of the Stout Institute and consideration of the work accomplished along this line presented in this paper were determined.

Summary and Findings--A complete resource unit would indicate all information related to the subject. A resource unit such as that would be impractical, if even if possible to publish. However, a resource bulletin can be published that will act as a beginning and as a guide for the teacher to build his own resource unit. An example of how this could be accomplished is included in Unit II of this study.

Stroebel, John C., A Comparative study of Educational Opportunities for College Preparation in Mukwanago Union High School. Plan B, M.S., 1964, Stout State University, 32 pages: Adviser, Dr. Iverson.

Stroebel (continued)

Purpose of Study--To determine the quality of educational opportunities offered at Mukwanago Union High School.

Method Used--Review of literature.
Opinion survey of graduates in college.

Summary and Findings--There was every indication that Mukwanago Union High School students fared well in college. More and more students were found to be planning to attend college each year. With the exception of the foreigh language area, there was clear evidence that Mukwanago Union High School was comparable to other fine public schools in our nation.

Constant curriculum improvement was evidenced at Mukwanago Union High School with the advent of the new and promising area studies course introduced recently. A further indication was the offering of advanced German and Latin courses instituted at Mukwanago Union High School for the 1964-65 school year.

Stubbs, Charles A., A Series of Proposed General Metal Projects For A Class of Full-Time Vocational School Students. Plan B, M.S., 1955, Stout State University, 7 pages: Adviser, Dr. Anderson.

Purpose of Study--To attempt to select a limited number of general metals projects, which are within the abilities of vocational school students, and are useful and desirable to these students.

Method Used--Review of literature.

Summary and Findings--The following list of possible projects of a general metals nature were considered. Those starred were selected for construction.

Fly tying
Table top vise
Book rack
*Table lamp
Nameplate
Nameplate bracket
Candle holders
Magazine rack
*Can and bottle opener
Pin up lamp
*Coping saw
Paper punch

Swanson, Gus and Ekman, Robert, A Proposed Revised Industrial Education Program In The Luther L. Wright School For the City of Ironwood, Michigan. Plan B, M.S., 1956, Stout State University, 28 pages: Adviser, Dr. Anderson.

Purpose of Study--To propose a revised shop layout, and to propose areas in instruction from the ninth through the twelfth grade in industrial education which reflect the needs of the students in Ironwood, Michigan.

Method Used--The collection of data for this study was through consultation with many teachers on campus to determine what the schools were offering in industrial education.

Summary and Findings--Through consultation and recommendation from the State Department of Education, it was found that most schools were offering exploratory courses in the junior high school through the tenth grade. With this in mind, this study set up general shop courses in the ninth and tenth grades and unit shops in the eleventh and twelfth grades so that the students might specialize in the upper grades.

Swarte, Melvin D., The Development of Electronics Projects For the Senior High School. Plan B, M.S., 1959, Stout State University, 21 pages: Adviser, Dr. Ruehl.

Purpose of Study--To select basic circuits which are inexpensive, efficient and fulfill objectives of electronics courses.

Method Used--A review of literature was made to find the circuits which were most widely used in industry and the basic concepts of these circuits.

Summary and Findings--The experiment selection herein contained showed how basic electronic objectives could be met with a series of simple experiments designed to use few components. Many variations were made to improve the operation of the circuits. It is quite possible that these circuits could be revised after they have been used in classes. Some variations might be made to eliminate some of the components that were used.

Tepp, R.A., A Proposed Plan For Implementation of Applicable Physics Principles in the Metal Area of the Comprehensible General Shop. Plan B, M.S., 1959, Stout State University, 34 pages: Adviser, Dr. Wigen.

Purpose of Study--To collect a partial list of physics principles and a plan for incorporating these principles into a course of study designed for the metal area of the one-man comprehensive general shop.

Method Used--The normative survey procedure was used in this study.

Summary and Findings--

1. Relatively little research has been done in terms of coordinating industrial arts and physics content.
2. It appears that leaders in the field of education believe there is a definite need for having the students apply what they learn in the classroom to problems of everyday living.
3. The industrial arts shop provides opportunities for applying physics principles.
4. Physics principles are potentially applicable to machines, tools, operations, and related information topics.
5. The proposed plan for the implementation of physics into the general shop was included in the study.

Teppen, Lyle H., A Summary of First-Year Activities and Recommendations for Continuing the Adult Education Program at Round Lake, Illinois. Plan B, M.S., 1961, Stout State University, 30 pages: Adviser, Dr. Rudiger.

Purpose of Study--To evaluate and summarize the adult education program at Round Lake, Illinois, and to make recommendations for future development.

Method Used--Survey of opinions of students.

Summary and Findings--Recommendations covered the following areas:

1. Proposed future offerings of the program.
2. Teachers.
3. Advisory committee.
4. Financing the program.
5. Evaluating the program.
6. Recommendations for the director.

Theis, John H., A Resource Unit on Weather Conditioning A Small Residence for a Senior High School Industrial Arts Course in Architectural Drafting. Plan B, M.S., 1960, Stout State University, 52 pages: Adviser, Dr. Wigen.

Purpose of Study--To gather the pertinent material and teaching suggestions related to the heating-insulation, cooling, room arrangement and design, and lot orientation of a small residence (summarized under the general title, weather conditioning a house) that an instructor needs to better teach this phase of a course in senior high school architectural drafting.

Method Used--Review of literature.

Summary and Findings--To develop an effective means of obtaining information about a topic, the resource unit has a great value. The study developed many ways to teach a unit or topic which has great value as a source reference for topic information for instructional use, and points out different means of evaluation. However, ultimately, it is the classroom instructor who must take the theory of a resource unit and apply it in a practical situation. The unit should prove helpful to teachers who are confronted with the problem of teaching with variety, stability, and interest in the residence weather conditioning phase of architectural drafting.

Thibault, Armand H., Suggested Learning Activities for the Development of Industrial Arts Student Ability to do Problem Solving. Plan B, M.S., 1960, Stout State University, 30 pages: Adviser, Dr. Wigen.

Purpose of Study--To submit activities that contribute to the improvement of instruction and to the development of the student.

Method Used--The method for developing this study was the normative survey of documentary frequency method.

Summary and Findings--

1. Problem solving activities are essential to industrial arts education.
2. Activities for problem solving must be real and meaningful.
3. The problem must be indentified and the need for solving it must be realized.
4. Problem solving activities can function on all levels of industrial arts education.
5. The problem solving and project method of teaching should be used to develop the ability to do problem solving.

Thomas, Henry L., A Documentary Analysis of Selected Areas of Design. Plan B, M.S., 1963, Stout State University, 62 pages: Adviser, Dr. Swanson.

Purpose of Study--To present an overview of design literature, to analyze the approaches for teaching design, to develop a model course of study, and to develop a practical rating scale for design.

Method Used--Review of literature.

Summary and Findings--The value of design was its fitness of function, materials, and procedures to the human need it serves.

The seven basic design teaching approaches for integrating design into a curriculum were: the design atmosphere approach, the practical design approach, the redesign approach, the free form approach, the problem solving approach, the total picture approach, and the visual approach.

The units of instruction within a design course were as follows: introduction, appropriateness of needs, aesthetics, and project design. Actual solving of the design problems encompasses two-thirds of the allotted class time.

A practical evaluation scale for the school shop allows both the students and teacher to grade the project. The evaluation criteria included in an appropriate scale for school shop use as follows: function, originality, workmanship, structure, simplicity, and honesty.

Tidwell, Margaret J., A Comparative Study of the Eating Habits of 11 and 12 Year Old Girl Scouts and Boy Scouts in Menomonie, Wisconsin. Plan B, M.S., 1965, Stout State University, 63 pages: Adviser, Miss Meiller.

Purpose of Study--

1. To obtain information regarding the food habits of the Girl Scouts and Boy Scouts 11 and 12 years old, in Menomonie, Wisconsin, to use when teaching the students in H. E. 212, Nutrition, about food habits during childhood.
2. To obtain actual menus from children 11 and 12 years old to be used in teaching H. E. 212, Nutrition.

Tidwell (continued)

Method Used--The method employed was the normative survey with a review of literature.

Summary and Findings--

1. The fruit and vegetable group is the food group least likely to be eaten in recommended amounts by these children.
2. The recommendation for the milk group was met by the greatest per cent of students, particularly on the weekdays.
3. As a group, only about one-half of all the students met the bread group recommendation.
4. A larger percentage of children consumed the recommended amount of fruits and vegetables at the evening meal than at the noon meal.

Tindell, James, An Expanded Industrial Arts Program for St. Francis, Wisconsin, High School. Plan B, M.S., 1963, Stout State University, 19 pages: Adviser, Dr. Prichard.

Purpose of Study--To develop an expanded Industrial Arts program for the St. Francis, Wisconsin, High School.

Method Used--Review of literature.

Summary and Findings--The real task of school is to design a program that is flexible enough to accommodate both the person who is college bound and the person who is not. An industrial arts program should consider such criteria as the ability of the school district to finance the shop, the needs of the students and the prospects of employment in the suggested areas.

Tobin, Gerald W., The Content Needed to Teach the Concept of the Storage and Transmission of Electricity at the Beginning and Intermediate Levels. Plan B, M.S., 1965, Stout State University, 33 pages: Adviser, Mr. Flug.

Purpose of Study--To develop a unit in the storage and transmission of electricity for two levels, introductory and advanced.

Method Used--The methods of research used in developing this paper were documentary and observational. They consisted of reviewing available test books and working with practicing electricity instructors.

Summary and Findings--This paper consisted of an outline of the minimum material needed to teach a unit in the sub-concept "Storage and Transmission of Electricity," which was under the major concept Energy. The sub-units were broken down into several parts including concept outline, learning activities, experiments, and teaching expedients. The sub-concept would be part of the course in American Industry.

Togstad, Keith M., Manual Arts Therapy for the Industrial Arts Graduate. Plan B, M.S., 1964, Stout State University, 28 pages: Adviser, Dr. Swanson.

Purpose of Study--To survey the occupational area of manual arts therapy as a possible vocational or industrial arts graduate.

Method Used--A survey of college and university catalogues and bulletins disclosed that twenty-two institutions offered manual arts therapy training in their curriculums.

A letter of inquiry about these programs was sent to the chairmen of the industrial arts departments in these various colleges.

Summary and Findings--A college bound student can enter manual arts therapy by two methods: (1) Enter without clinical training at lower grade, and (2) Enrolling in a college that has an affiliation with the Veterans Administration Hospitals. Students do not receive remuneration, but are eligible for the benefits provided under the Employee's Compensation Act. There are twenty-two colleges and universities that offer manual arts therapy.

The trend in therapy work is for more specialization which should begin early in the college career. The relaxed attitude that colleges have expressed for manual arts therapy indicates that national standards for subject matter and credit should be adopted.

Tuve, Malcolm E., A Proposed Technical-Industrial Arts Curriculum for the Small City High School Having a General Comprehensive Industrial Arts Shop. Plan B, M.S., 1959, Stout State University, 26 pages: Adviser, Dr. Wall.

Purpose of Study--To develop a proposed technical-industrial arts curriculum for a small city high school that has only a general comprehensive industrial arts shop.

Method Used--Review of literature.

An analysis of the needs of the students in the community.

Summary and Findings--Proposed Technical-Industrial Arts Curriculum.

- Ninth Grade
    - Required-
        - English I
        - General Shop I
        - General Science I
        - Physical Education
    - Electives- 1 credit
        - World History
        - American History
    - Additional Electives
        - Art
        - Debate
        - Music

- Tenth Grade
    - Required-
        - English II

Tuve (continued)

- General Shop II
- Algebra I
- Physical Education

Electives - 1 credit
- Civics
- Biology
- Economics
- Sociology

Additional Electives -
- Speech
- Art
- Music

Eleventh Grade
- Required-
  - English III
  - General Shop III
  - Plane Geometry
  - Solid Geometry
  - Algebra II
  - Physical Education
- Electives - 1 credit
  - Physics
  - Chemistry
- Additional Electives -
  - Speech II
  - Art III
  - Music

Twelfth Grade
- Required -
  - English IV
  - General Shop III
  - Physics or Chemistry
  - Trigonometry
- Electives - 1/2 credit
  - Civics
  - Economics
  - Sociology
- Additional Electives -
  - Speech III

Varick, Gerard P., A Survey of Major Industries in Racine Concerning the Order of Importance of Subject Matter for a Technical Science Course. Plan B, M.S., 1961, Stout State University, 24 pages: Adviser, Dr. Rudiger.

Purpose of Study--To ascertain what basic scientific principles Racines' industry feels should be taught to individuals that would be employed as technicians in various areas. To ascertain what phases of these principles should be stressed.

Method Used--Guided interview and check list.

Summary and Findings--There appeared to be an area of technology classified by industry as laboratory testing. Industry produces a variety of goods which points to a diversity of areas in which technicians are utilized. Demand for technicians appears to be high in all areas of technology except chemical manufacturing. Seventy-five per cent of respondents felt the general technical science course might be preferred instead of a core curriculum. Indications were that practically all main units of physics and chemistry contained some phases on which special emphasis should be placed.

Vernon, Walter J., A Proposed Plan for Organizing a Program of Industrial Education for the City of Kaukauna, Wisconsin. Plan B, M.S., 1954, Stout State University, 31 pages: Adviser, Dr. Anderson.

Purpose of Study--To plan a program of industrial education that will be flexible in nature so that the student will be able to receive instruction from a balanced offering of industrial arts and vocational subjects.

Method Used--The methods used in the preparation of this paper were as follows:

1. Observation of the present industrial education program, the community, and industry by the instructors in the department.
2. A review of the literature on planning a curriculum for Vocational and High Schools.

Summary and Findings--

1. Curriculum offerings vary with the geographic areas of the county.
2. Curriculum offerings may vary within a geographic area.
3. Present curriculums in industrial education tend to be too restrictive in regards to the number of courses offered.

Vogel, Henry, Analysis of Farm Equipment Mechanics. Plan B, M.S. 1965, Stout State University, 27 pages: Adviser, Dr. Rudiger.

Purpose of Study--To make an analysis of the farm equipment mechanics occupation to provide a basic list of instructional units for up-dating programs designed to train young mechanics who wish to enter the field as farm equipment mechanics.

Method Used--Review of literature.

Summary and Findings--The following recommendations were made in conjunction with this study:

1. An analysis should be made of the farm equipment that has not been included in this study. More specifically these were:
    a. potato harvesting and planting equipment,

   b. beet harvesting and planting equipment,
   c. rice harvesting and planting equipment, and
   d. cotton harvesting and planting equipment.
2. Any course developed from this analysis must remain sufficiently flexible to incorporate additional changes as they occur in the occupation as a result of changes in the basic design and construction of farm tractors and implements.
3. This analysis should be revised and up-dated annually to keep pace with the significant changes in the design and construction of equipment or as new types of equipment become available for use in agriculture.
4. Since this analysis was prepared considering only farm equipment as used in the midwestern states and does not include specialized equipment as used in other parts of the nation, it would be advisable to critically analyze this information before using it as an analysis to develop a program in other geographic regions.

Vogtsberger, James, A Survey of the Value of Selected Senior High Industrial Arts Subjects and Their Application in Technical and Engineering Studies. Plan B, M.S., 1964, Stout State University, 14 pages: Adviser, Dr. Wiehe.

Purpose of Study--The purposes were to:

1. Determine the reasons for not taking selected industiral arts at the senior high level.
2. Find out how the courses that were taken were rated.
3. Determine the effectiveness of selected industrial arts courses towards technical and engineering studies.
4. Determine to what extent industrial arts teachers were counseling students towards the technical or engineering areas.

Method Used--Data for this study was obtained by the survey method.

Summary and Findings--

1. There is evidence that students entering the technical or engineering fields would be more informed, better adjusted, and less likely to drop out had they taken selected industrial arts subjects at the senior high school level.
2. Industrial arts instructors should take a more dynamic and active role in the counseling of students who show interest in or are likely to enter the technical or engineering fields.
3. The majority of the students entering the engineering and technical areas have deficiencies in selected industrial arts subjects.

Vogtsberger, Richard J., A Survey Concerned with Students Reaction To the Industrial Education Program at Waukegan Township High School. Plan B, M.S., 1962, Stout State University, 22 pages: Adviser, Dr. Christianson.

Vogtsberger (continued)

Purpose of Study--To determine if the ninth grade industrial arts course is serving the exploratory purpose for which it was designed.

Method Used--A questionnaire was distributed to all students enrolled as tenth graders in industrial arts courses.

Summary and Findings--There was an inbalance in the selection of units in the tenth grade industrial arts program.

Tenth grade students were found to be mature enough to make intelligent choices of units, and they expressed their desire to accept this responsibility. Since a high percentage of the tenth grade students were continuing students and had been exposed to the exploratory course, the elimination of such a course would have a balancing effect on the selection of various shop units. The scheduling of the tenth grade boys in industrial arts was effective. Parents had much influence over the students' choice of units. The industrial education department was found not to be doing an effective job in promoting the industrial arts program for both parents and students.

Walton, Roland J., Interests and Attitudes of Eighth and Ninth Grade Boys Concerning Industrial Arts After Taking Exploratory Industrial Arts at Ruffner Junior High School, Norfolk, Virginia. Plan B, M.S., 1965, Stout State University, 19 pages: Adviser, Dr. Rudiger.

Purpose of Study--To determine the extent to which seventh grade exploratory industrial arts is serving the purpose for which it was designed.

Method Used--The information in this study was obtained through the use of a questionnaire.

Summary and Findings--The findings indicated that the exploratory industrial arts program was serving the purpose for which it was designed, namely, to introduce students to modern methods of industry using both project and non-project activities, thereby enabling students to better select the industrial arts areas they like best for further study in eighth and ninth grades. However, it has been evidenced in this study that the members of the faculty who teach in the industrial arts department need to work out a guide showing what their department can do to serve, in the best possible way, the interests of the students. Likewise, the guidance counselors should attempt to achieve a greater understanding of their role in counseling those students who indicate a desire to take additional industiral arts courses.

A more extensive testing program to determine pupils' interests would provide both teachers and counselors with additional information with which to help the student make the best selection of industrial arts courses.

Wandrei, Lyle H., The Development of Guidelines for Writing and Testing Programmed Instruction in Industrial Graphics. Plan B, M.S., 1964, Stout State University, 60 pages: Adviser, Mr. Erickson.

Wandrei (continued)

Purpose of Study--To establish guidelines for preparing programmed units of instruction to help industrial graphics teachers develop programs to do the tasks programmed instruction can do most efficiently. The emphasis was on learning to program instruction.

Method Used--Information in this study was supported by documentary evidence.

Summary and Findings--Seven directive statements were developed to serve as guides for the teacher who is preparing programs. The statements were:

1. Select subject matter appropriate for programming.
2. Gather background information on students who will use the program.
3. Specify the instructional objectives.
4. Adopt a paradigm.
5. Prepare the content outline.
6. Construct program items.
7. Evaluate and revise the program.

Wick, Gerald D., A Survey of Educational Competencies Desired for Admittance to Carpentry Apprenticeship Programs in the State of Wisconsin. Plan B, M.S., 1963, Stout State University, 21 pages: Advisor, Dr. Rudiger.

Purpose of Study--To indicate what skills or knowledge of an industrial education nature are desired for admission to apprenticeship or vocational school carpentry programs. 2. To ascertain the kinds and amount of academic subjects desirable for entrance into apprenticeship or vocational school carpentry programs. 3. To provide information for the development of a course of study for a high school unit carpentry course. 4. To provide information for improved educational counseling of students who have chosen carpentry as their future occupation.

Method Used--Questionnaire.

Recommendations--On the basis of the findings of this study, it was recommended that:

1. High school students anticipating entrance into a carpentry apprenticeship indenture should arrange their study programs to include the courses as specified in the conclusions of this report.
2. Industrial arts offerings be expanded, as quickly as possible, to include the recommended areas as ascertained by this study.
3. Advanced industrial arts offerings should be continually evaluated with an eye to the requirements of the trade area involved.
4. This type of study be made at appropriate intervals to help establish current and up-to-date guidance information.
5. The results of this study be made readily available to guidance counselors to aid them in pupil course planning.

Williams, Haven J., Proposed Methods of Quality Control that may be taught in the Offset Lithographic Process. Plan B, M.S., 1965, Stout State University, 60 pages: Advisor, Mr. Whydotski.

Williams (continued)

Purpose of Study--To review literature on quality control in the offset lithography printing industry. To locate aids and devices that may be used to help the printer maintain high quality in production. To suggest what methods would be the best to teach in a high school graphic arts laboratory and on the vocational school level.

Method Used--Review of literature.

Summary and Findings--On both the vocational and high school levels, the characteristics and factors should be identified and taught along with the definitions of quality control with the affects of pH on fountain solutions being taught and demonstrated. The use of specific gravity and Baume' density should be taught on both levels, but the vocational group would have more use for it. Sensitivity guides would have little value at the vocational school level. Densitometry belongs to the student who is going to have use for it. The student should not be handicapped by the use of worn out or extremely outdated equipment. Visual control of quality needs a minimum amount of equipment.

Weld, Warren J., *Proposed Drawing for Pre-Engineers*. Plan B, M.S., 1959, Stout State University, 33 pages: Adviser, Dr. Wigen.

Purpose of Study--To develop a list of instructional units that can be used in mechanical drawing for pre-engineering students in senior high school.

Method Used--The data for this study was obtained from available sources in the Stout State College Library.

Summary and Findings--This investigation presented a list of instructional units adaptable to a course in pre-engineering drawing. From the material surveyed, it was found that there was more agreement by authors of courses of study as to what drawing content should be taught than between textbook authors. It can be concluded that the frequency of occurence of an instructional unit is not necessarily an indicator that it is more important in content than instructional units that appear less frequently. The findings of this study should be helpful for teachers concerned with the development of pre-engineering drawing courses for senior high school students.

Yen, Duong Van, *A Guide for Improving Adult Education Courses in Vietnam. Plan B,* W.S., 1964, Stout State University, 56 pages: Adviser, Dr. Wigen.

Purpose of Study--To construct a guide to help teachers and administrators to improve the present status of adult education courses in Vietnam in course planning, methods and instructional materials used in these courses and financing. Also, to obtain reliable data useful for effective planning or improving the adult education program in Vietnam.

Method Used--Review of literature.

Yen (continued)

Summary and Findings--Adult education is divided into three types of courses: Anti-illiteracy, post-alphabetization, and vocational courses. Well trained teachers are needed. Funds for operating these courses are lacking. Traditional techniques are still in use. Types of courses available are academic, creative arts, economic, and vocational. Printed materials are available in abundance. Audio-visual equipment should be used. Adult education should be divided into five types;' remedial, occupational, relational, liberal, and political and civic courses.

Younger, Robert A., A Survey of the Team Teaching Method to Evaluate its Utilization in the Presentation of Industrial Education 103 Woodworking at Stout State College. Plan B, M.S., 1962, Stout State University, 32 pages: Advisor, Dr. Swanson.

Purpose of Study--To investigate the method of team teaching to determine if this method of instruction, or any part of it, could be utilized in the presentation of the new course, Industrial Education 103, Woodworking, offered by the Woodworking Department of Stout State College.

Method Used--Review of literature. Observation and evaluation of teaching methods.

Summary and Findings--It is recommended that team teaching, as proposed, be correlated with the practice teaching program at Stout State College.

Zaboj, Frank J., A Proposed Industrial Arts Program for Union High School, Weyauwega, Wisconsin, Plan B, M.S., 1962, Stout State University, 40 pages: Advisor, Mr. Sampson.

Purpose of Study--To develop an industrial arts program for Union High School, Weyauwega, Wisconsin.

Method Used--Review of literature.

Summary and Findings--The industrial arts program is made up of four courses: General Drawing, General Woodworking, General Metals, and Arts and Crafts. Since General Drawing was to be the first course offered, an entire course of study was included, whereas the other three areas were only treated in outline form.

Zerlu, Irfan, Suggested Instructional Units for Selected Areas of Wood Finishing in the Vocational Schools in Turkey. Plan B, M.S., 1961, Stout State University, 79 pages: Advisor, Dr. Wigen.

Purpose of Study--To determine a course of study with instructional units suitable for use in the men's technical teacher training colleges and men's trade institutes in Turkey.

Zerlu (continued)

Method Used--The normative survey type of research, by use of the documentary frequency method, was used in this study.

Summary and Findings--Modern wood finishes which are generally made by a complicated combination of many chemicals has resulted in the development of fast drying, more durable wood finishes than ever before. Methods of application of modern finishes were developed as a result of research in modern wood finishing laboratories. Thus, wood finishes have become available to everyone. A rapid growth and development of wood finishes has resulted by the increased use of synthetics. It seems that this industry offers many opportunities and possibilities to those who are interested in wood finishes and wood finishing.

III

Evaluation

"In the school, where the chief objective is the promotion of learning, evaluation plays a definite important role."*

Of constant concern to the classroom teacher, as well as to pupils and others, is the perennial problem of evaluation. The following abstracts include detailed information about specific areas of work and are involved with:

1. Guide For Project Evaluation.
2. Guide For the Improvement of Evaluation.
3. Objective Grading by the Use of a Tabulated Job Sheet.
4. Program Evaluation.
5. Proposed Rating Scales.
6. Pupil-Teacher Sheets.

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*Cf. Courtney, _loc_, _cit_., p. 303.

Berg, Robert L., An Objective Method of Grading Automotive Brake and Wheel Bearing Service Jobs by the Use of a Tabulated Job Sheet. Plan B, M.S., 1964, Stout State University, 31 pages: Adviser, Mr. Morical.

Purpose of Study--To construct an objective job sheet for use in a secondary school auto mechanics class.

Method Used--Review of Literature.

Summary and Findings--This study showed that the tabulated job sheet was superior to the standardized job sheet, with a high correlation of grading between evaluators.

The tabulated job sheet provided the instructor with a more objective method of grading student service jobs from day to day and reduced the subjective influence that can so easily affect a students final grade.

Desmarias, Robert P., Evaluating An Industrial Arts Program. Plan B, M.S., 1954, Stout State University, 65 pages: Adviser, Dr. Anderson.

Purpose of Study--To facilitate setting up an evaluation program for a junior high school industrial arts department.

Method Used--A review of literature pertaining to evaluation studies.

Summary and Findings--Of the devices available to aid in self-evaluation, Evaluative Criteria has been the most successful. It was originally published in 1939 as an instrument to be used in accrediting secondary schools. However, this purpose gradually vanished and in its place was substituted the basic purpose of self-evaluation. There is considerable testimony to its value both as a measuring instrument and for the stimulating insights gained through self-evaluation. This study included the full section on industrial arts which should be an aid in evaluating a junior high program.

In order to determine individual needs, teachers need to have information about the community and about the pupils with whom they come in contact. These contributing factors to the development of individual need should be considered in an evaluation of whether a program is meeting their needs. A direct attempt to determine whether individual needs are being met is to ask the pupils themselves. This study includes a questionnaire based on the imperative needs to help students show whether their needs are being met.

Janiak, Betty P., An Evaluation of the Guidance Services at Intermountain Indian School, Brigham City, Utah, With a Proposed Five-Year Plan of Expansion and Development. Plan B, M.S., 1964, Stout State University, 91 pages: Adviser, Dr. Rimel.

Janiak (continued)

Purpose of Study--To determine the existing status of the guidance services in order to develop a plan of expansion and development.

Method Used--The following methods were used:

1. A questionnaire was circulated to every member of the existing staff to determine the opinion of the staff members as to the effectiveness of the present program.
2. All guidance staff members were interviewed personally to determine whether they felt the department was meeting the goals which had been set up for the guidance programs.
3. A check list was circulated to all professional staff members to check on background and schooling.

Summary and Findings--Since the school is specifically for Navajo Indian children, the staff has a real challenge and responsibility. It is not easy to educate children for a culture they have never known and are not really sure they want without destroying their faith in and respect for their native culture.

And many who have attempted it can testify, dogmatic moralizing will not do the job. The only hope lies in unconditional acceptance; acceptance of these children as they are with love and affection to help them with their problems as they feel the need for help, and if and when they seek it. In a democracy, no individual needs to be forced to accept a way of life which is completely foreign to him, and which differs so completely from what he has known. Force and government order will not do the job any more than will dogmatic moralizing. The only successful approach is one that allows for individual differences and accepts the child as a person in his own right, not as an animal that needs to be "civilized." This is unconditional acceptance, the key to change.

Jones, Marvin L., A Student Rating Scale of the Driver Education Course at Aberdeen, South Dakota. Plan B, M.S., 1956, Stout State University, 34 pages: Adviser, Dr. Anderson.

Purpose of Study--To yield information to improve the Driver Education course at Aberdeen, South Dakota.

Method Used--A study of rating scales and related information conducted to determine items of information relative to this field.

Summary and Findings--A rating scale is one method of obtaining information about a particular subject. Many revisions were made in producing the finished scale. Future use will indicate weakness indicative of more revision. This scale was completed by seventy-three Driver Education students having completed the course at Aberdeen, South Dakota. Responses indicated three things: revision, verification, and change in teaching technique.

Kichefski, James A., Pupil-Teacher Evaluation of Woodwork Projects In Industrial Arts Education. Plan B, M.S., 1955, Stout State University, 21 pages: Adviser, Dr. Oetting.

Purpose of Study--To determine what criteria pupil-teacher sheets should be based upon, and to develop a method of marking based upon such self-evaluation.

Method Used--Normative survey of literature.

Summary and Findings--Small projects serve as a logical terminal point for marking. When using large projects, the most desirable method is to divide the project into various stages such as designing, planning, etc. This system provides frequent marking periods without grading every operation. A good system of evaluation must have some basis for being just to everyone. It was found the pupil-teacher devices contributed greatly to a strong educational system.

Reuther, Roger, An Evaluation of the West Allis, Wisconsin High School Industrial Arts Program as it Related to Pre-Engineering Students. Plan B, M.S., 1965, Stout State University, 41 pages: Adviser, Mr. Halfin.

Purpose of Study--The purpose was to determine:

1. How many future engineers are presently in the West Allis high schools.
2. What industrial arts courses they will complete before graduation from high school?
3. Their feelings toward industrial arts?
4. What course and school administrative changes would attract more college bound students to the industrial arts program?

Method Used--Survey of available materials.
Questionnaire.

Summary and Findings--

1. This study showed that of the 1138 male students who participated, 7.6 per cent were interested in the field of engineering as a future occupation. Since this was relatively a small group of the student body, a course or set of courses directed specifically toward the engineers cannot be justified.
2. The two most common reasons for not including industrial arts in the schedules of the pre-engineering group are: (a) the lack of available time in the students schedule, and (b) the student must take a foreign language for college entrance.
3. The students themselves placed a high value on all of the drafting classes and the first course in machine shop.
4. Engineering students showed a very low interest in the graphic arts, advanced woodworking, and advanced machine shop courses.

Rokusek, Henry J., A Guide for the Improvement of Evaluation of Student Development in Industrial Arts. Plan B, M.S., 1956, Stout State University, 32 pages: Adviser, Dr. Wigen.

Purpose of Study--To prepare a guide that may be used to improve the evaluation of student development in industrial arts.

Method Used--The method employed in this study was a normative survey and was based upon documentary frequency.

Summary and Findings--In presenting the information relative to appraising student development in industrial arts, the following conclusions were tabulated for the study:

1. All evaluation should be geared to the objectives of industrial arts.
2. Each objective of industrial arts should be translated into meaningful suggested behavioral changes.
3. Evaluation should be the final step in the administration of a course offering.
4. Evaluation is a broad term which includes all forms of student appraisal.
5. Care should be taken in the selection of tests.
6. Certain outcomes of instruction cannot be measured by either written or performance tests.
7. The multiple-choice item, when well constructed, is one of the best items included in objective type testing.
8. The performance test is of vital importance in industrial arts programs, and will sometimes yield more valid measures of student abilities than do oral or written tests.
9. When major projects are graded, stress should be placed on specific phases of construction.
10. The rating scale should be used in conjunction with project grading for purposes of establishing greater validity and reliability.
11. Objectivity in recording incidents is of vital importance when anecdotal records are used.
12. Anecdotal records, sociometric tests, rating scales, check lists and autobiographies are recommended for evaluating student attitudes and interests.

Sabatke, Donald W., An Evaluation of the McFarland, Wisconsin Industrial Arts Program. Plan B, M.S., 1964, Stout State University, 28 pages: Adviser, Dr. Wiehe.

Purpose of Study--To evaluate the industrial arts program of McFarland, Wisconsin, high school.

Method Used--Review of literature.

Summary and Findings--The study showed that the industrial arts program at the McFarland, Wisconsin, High School should be expanded and broadened to be of more value to the school and the student. Based upon the philosophy of leaders in the field of industrial education, it seemed that the industrial arts curriculum did not have enough depth in the upper grade level. There also appeared to be a lack of correlation between industrial arts and courses such as science, mathematics, and language.

Sampson, Jack B., A Proposed Rating Scale for Projects in the Leather Area of the General Shop. Plan B, M.S., 1956, Stout State University, 22 pages: Adviser, Dr. Anderson.

Purpose of Study--To develop a rating scale for projects in the general shop leather area. The rating scale was designed to be objective, require a minimum time to use, and aid in teaching leathercraft.

Method Used--A documentary study was carried out by a review of the literature. Experimentation with rating scales was found to be very effective in making ratings more objective and in aiding in instruction.

Summary and Findings--It was concluded from this study that an area must be considered in its entirity to construct a rating scale and that the use of such scales must make it possible for the student to attain the objectives of the course.

Schanck, Charles A., A Proposed Plan for Evaluating Student Personal Traits and Work Habits in General Woodworking. Plan B, M.S., 1962, Stout State University, 57 pages: Adviser, Dr. Swanson.

Purpose of Study--To furnish a guide for developing a plan and to serve as a help to instructors who are in a position to evaluate student personal traits and skill development.

Method Used--Review of literature.

Summary and Findings--The proposed plan of evaluation consisted of:

1. stating and defining the specific course objectives,
2. an inventory and check list for evaluating interest,
3. recording observations on a check list for evaluating work habits,
4. three performance tests for evaluating skills, and
5. a project selection check and rating scale for evaluating the major project.

Schwantes, Ruben J., A Proposed Rating Scale for Selected Finishes in Woodworking. Plan B, M.S., 1955, Stout State University, 22 pages: Adviser, Dr. Anderson.

Purpose of Study--To construct a scale that a person can use to objectively grade general finishing projects.

Schwantes (continued)

Method Used--The experimental method was used in this study. A review of the literature was made to determine the methods to be used for constructing the rating scale and for determining its reliability and validity. Data were collected through the use of a jury of trained teachers who reacted to the quality of a finish based on a rating scale. Simple correlations were calculated to determine the reliability.

Summary and Findings--It would not be wise to sacrifice validity to raise the reliability of the developed rating scale. The study showed that the rank order, not the raw scores, varied only slightly and may be used for objective evaluation. The reliability increases as the rater becomes more experienced in the use of the rating scale. The items not functioning on the rating scale should not be counted when evaluating a student's work. The non-functioning items should not be omitted entirely from the rating scale for they do appear to have educational value.

Wege, Roger, A Guide to the Evaluation of Student Projects in Woodworking. Plan B, M.S., 1958, Stout State University, 43 pages: Adviser, Dr. Wigen.

Purpose of Study--To investigate project evaluation methods that have been used by woodworking instructors.

Method Used--This study used the review of literature method for gathering data concerning project evaluation factors.

Summary and Findings--

1. Project evaluation has often overlooked meaningful factors.
2. Evaluation by progressive stages is the better of three methods reviewed.
3. Teacher training institutions are responsible for training teachers to evaluate objectively.
4. The construction phase of evaluation has been over-emphasized.
5. Insufficient emphasis has been placed on the creative and finishing phases.
6. Marks have often been determined from nonobjective evaluation.
7. Three to five levels of proficiency are most suited to performance evaluation.
8. Students need to know the standards by which they are being evaluated.
9. Student participation is a valuable learning experience.
10. Marks, based on objectivity, are a positive incentive to learning.
11. Parents want to know how their child is progressing.

Zittleman, Donald A., A Proposed Guide for Project Evaluation in Industiral Arts. Plan B, M.S., 1956, Stout State University, 36 pages: Adviser, Dr. Wigen.

Zittleman (continued)

Purpose of Study--To produce a project evaluation guide for industrial arts teachers and students.

Method Used--The method employed in the study was the normative survey of available literature.

Summary and Findings--The guides commonly used today, do not encompass all the factors that need recognition in the evaluation of a class project. Many guides and lists of evaluative criteria were found to be lengthy and impressive to the eye, but upon analysis of the criteria, it was found that many had similar conotations and were overlapping. Each criterian should be clear and distinct from the others. This allows a shorter guide which can cover a larger area of factors.

It was found that guides often have no criteria pertaining to the physical characteristics of the shop. Using these guides, a project may be found to be excellent, although the guide lacked such factors as lack of storage space, available materials and proper equipment.

A guide, to be truly functional, must contain criteria that covers all aspects of the teaching situation, it must include the factors relevant to educational psychology and proper learning situations. It must include in its scope the objectives of education. Lastly, it must consider the physical nature of the industrial arts shop.

The guide should be constructed in terms of ease of administration. If the guide is long and complicated, its future use is doubtful. More than likely, it will be placed on a high shelf to gather dust instead of being used as a device for rating industrial arts projects. On the other hand, accuracy and function must not be sacrificed for easy administration.

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